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PREFACE

The articles in this volume have been written by Sir Walter Lawrence, Bart., G. C. I. E., who wishes to acknowledge his special indebtedness to Major J. L. Kaye, late Settlement Commissioner of Jammu and Kashmīr, and to Major S. H. Godfrey, C. I. E., who verified the proofs, added much new matter, and enabled the author to bring the information up to date.

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PROVINCIAL GAZETTEERS OF INDIA

KASHMĪR AND JAMMU

Kashmīr and Jammu.—The territories of the Mahārājā of Kashmīr and Jammu may be roughly described in the words of the treaty of March 16, 1846, as 'situated to the eastward of the river Indus and westward of the river Rāvi.' This country, known to the English as Kashmīr and to the Indians as Jammu, covers an area of 80,900 square miles, extending from 32° 17′ to 36° 58′ N. and from 73° 26′ to 80° 30′ E. It may be likened to a house with many storeys. The door is at Jammu, and the house faces south looking out on the Punjab Districts of Jhelum, Gujrāt, Siālkot, and Gurdāspur. There is just a fringe of level land along the Punjab frontier, bordered by a plinth of low hilly country sparsely wooded, broken, and irregular. This is known as the *Kandi*, the home of the Chibs and the Dogrās. Then comes the first storey, to reach which a range of mountains, 8,000 feet high, must be climbed. This is a temperate country with forests of oak, rhododendron, and chestnut, and higher up of *deodār* and pine, a country of beautiful uplands, such as Bhadarwāh and Kishtwār, drained by the deep gorge of the Chenāb river. The steps of the Himālayan range known as the Pīr Panjāl lead to the second storey, on which rests the exquisite valley of Kashmīr, drained by the Jhelum river. Up steeper flights of the Himālayas we pass to Astor and Baltistān on the north and to Ladākh on the east, a tract drained by the river Indus. In the back premises, far away to the north-west, lies Gilgit, west and north of the Indus, the whole area shadowed by a wall of giant mountains which run east from the Kilik or Mintaka passes of the Hindu Kush, leading to the Pāmirs and the Chinese dominions past Rakaposhi (25,561 feet), along the Muztāgh range past K 2 (Godwin Austen, 28,265 feet), Gasherbrum, and Masherbrum (28,100 and 25,660 feet respectively) to the Karakoram range which merges in the Kuenlun mountains. Westward of the northern angle above

Physical aspects.

Hunza-Nagar the mighty maze of mountains and glaciers trends a little south of east along the Hindu Kush range bordering Chitrāl, and so on into the limits of Kāfiristān and Afghān territory.

At the Karakoram pass (18,317 feet) the wall zigzags, and to the north-east of the State is a high corner bastion of mountain plains at an elevation of over 17,000 feet, with salt lakes dotted about. Little is known of that bastion; and the administration of Jammu and Kashmīr has but scanty information about the eastern wall of the property, which is formed of mountains of an elevation of about 20,000 feet, and crosses lakes, like Pangkong, lying at a height of nearly 14,000 feet. The southern boundary repeats the same features—grand mountains running to peaks of over 20,000 feet; but farther west, where the wall dips down more rapidly to the south, the elevation is easier, and we come to Bhadarwāh (5,427 feet) and to the still easier heights of Basoli (2,170 feet) on the Rāvi river. From Mādhopur, the head-works of the Bāri Doāb Canal, the Rāvi river ceases to be the boundary, and a line crossing the Ujh river and the watershed of the low Dogrā hills runs fairly straight to Jammu. A similar line, marked by a double row of trees, runs west from Jammu to the Jhelum river. From the south-west corner of the territories the Jhelum river forms an almost straight boundary on the west as far as its junction with the Kunhār river, 14 miles north of Kohāla. At that point the western boundary leaves the river and clings to the mountains, running in a fairly regular line to the grand snow scarp of Nanga Parbat (26,182 feet). Thence it runs almost due north to the crossing of the Indus at Rāmghāt under the Hattu Pīr, then north-west, sweeping in Puniāl, Yāsīn, Ghizar, and Koh, the Mehtarjaos or chiefs of which claim the Tangir and Darel country, and linking on to the Hindu Kush and Muztāgh ranges which look north to Chinese territory and south to Hunza-Nagar and Gilgit.

It is said of the first Mahārājā Gulāb Singh, the builder of the edifice just described, that when he surveyed his new purchase, the valley of Kashmīr, he grumbled and remarked that one-third of the country was mountains, one-third water, and the remainder alienated to privileged persons. Speaking of the whole of his dominions, he might without exaggeration have described them as nothing but mountains. There are valleys, and occasional oases in the deep cañons of the mighty rivers; but the mountain is the predominating feature and has strongly affected the history, habits, and agriculture of the

people. Journeying along the haphazard paths which skirt the river banks, till the sheer cliff bars the way, and the track is forced thousands of feet over the mountain-top, one feels like a child wandering in the narrow and tortuous alleys which surround some old cathedral in England.

It is impossible within the limit of this article to deal in detail with the nooks and corners where men live their hard lives and raise their poor crops in the face of extraordinary difficulties. There are interesting tracts like Padar on the southern border, surrounded by perpetual snow, where the edible pine and the *deodār* flourish, and where the sunshine is scant and the snow lies long. It was in Padar that the valuable sapphires were found, pronounced by experts the finest in the world. Farther east across the glaciers lies the inaccessible country of Zāskār, said to be rich in copper, where the people and cattle live indoors for six months out of the year, where trees are scarce, and food is scarcer. Zāskār has a fine breed of ponies. Farther east is the lofty Rupshu, the lowest point of which is 13,500 feet; and even at this great height barley ripens, though it often fails in the higher places owing to early snowfall. In Rupshu live the nomad Champas, who are able to work in an air of extraordinary rarity, and complain bitterly of the heat of Leh (11,500 feet).

Everywhere on the mass of mountains are places worthy of mention, but the reader will gain a better idea of the country if he follows one or more of the better-known routes. A typical route will be that along which the troops sometimes march from JAMMU, the winter capital, past the Summer Palace at Srīnagar in Kashmīr to the distant outpost at Gilgit. The traveller will leave the railway terminus on the south bank of the Tāwi, the picturesque river on which Jammu is built. From Jammu (1,200 feet) the road rises gently to Dansāl (1,840 feet), passing through a stony country of low hills covered with acacias, then over steeper hills of grey sandstone where vegetation is very scarce, over the Laru Lari pass (8,200 feet), dropping down again to 5,150 feet and lower still to Rāmban (2,535 feet), where the Chenāb river is crossed, then steadily up till the Banihāl pass (9,230 feet) is gained and the valley of Kashmīr lies below.

So far the country has been broken, and the track devious, with interminable ridges, and for the most part, if we except the vale of the Bichlari, the pine woods of Chineni, and the slopes between Rāmban and Deogol (Banihāl), a mere series of flat uninteresting valleys, unrelieved by forests. It is a

pleasure to pass from the scenery of the outer hills into the green fertile valley of Kashmīr—the emerald set in pearls. The valley is surrounded by mountain ranges which rise to a height of 18,000 feet on the north-east, and until the end of May and sometimes by the beginning of October there is a continuous ring of snows around the oval plain. Leaving the Banihāl pass—and no experienced traveller cares to linger on that uncertain home of the winds—the track rapidly descends to Vernāg (6,000 feet), where a noble spring of deep-blue water issues from the base of a high scarp. This spring may be regarded as the source of Kashmīr's great river and waterway, commonly known as the JHELUM, the Hydaspes of the ancients, the Vitastā in Sanskrit, and spoken of by the Kashmīris as the Veth. Fifteen miles north the river becomes navigable; and the traveller, after a march of 110 miles, embarks at Khānabal in a flat-bottomed boat and drops gently down to Srīnagar, the capital of Kashmīr.

The valley and surrounding hills. Looking at a map of Kashmīr, one sees a white footprint set in a mass of black mountains. This is the celebrated valley, perched securely among the Himālayas at an average height of 6,000 feet above the sea. It is approximately 84 miles in length and 20 to 25 miles in breadth. North, east, and west, range after range of mountains guard the valley from the outer world, while in the south it is cut off from the Punjab by rocky barriers, 50 to 75 miles in width. The mountain snows feed the river and the streams, and it is calculated that the Jhelum in its course through the valley has a catchment area of nearly 4,000 square miles. The mountains which surround Kashmīr are infinitely varied in form and colour. To the north lies a veritable sea of mountains broken into white-crested waves, hastening away in wild confusion to the great promontory of Nanga Parbat (26,182 feet). To the east stands Harāmukh (16,903 feet), the grim mountain which guards the valley of the Sind. Farther south is Mahādeo, very sacred to the Hindus, which seems almost to look down upon Srīnagar; and south again are the lofty range of Gwāsh Brāri (17,800 feet) and the peak of Amarnāth (17,321 feet), the mountain of the pilgrims and very beautiful in the evening sun. On the south-west is the Panjāl range with peaks of 15,000 feet, over which the old imperial road of the Mughals passes; farther north the great rolling downs of the Tosh Maidān (14,000 feet), over which men travel to the Pūnch country; and in the north-west corner rises the Kājināg (12,125 feet), the home of the *mārkhor*.

On the west, and wherever the mountain-sides are sheltered

from the hot breezes of the Punjab plains, which blow across the intervening mountains, there are grand forests of pines and firs. Down the tree-clad slopes dash mountain streams white with foam, passing in their course through pools of the purest cobalt. When the great dark forests cease and the brighter woodland begins, the banks of the streams are ablaze with clematis, honeysuckle, jasmine, and wild roses which remind one of azaleas. The green smooth turf of the woodland glades is like a well-kept lawn, dotted with clumps of hawthorn and other beautiful trees and bushes. It would be difficult to describe the colours that are seen on the Kashmīr mountains. In early morning they are often a delicate semi-transparent violet relieved against a saffron sky, and with light vapours clinging round their crests. The rising sun deepens the shadows, and produces sharp outlines and strong passages of purple and indigo in the deep ravines. Later on it is nearly all blue and lavender, with white snow peaks and ridges under a vertical sun; and as the afternoon wears on these become richer violet and pale bronze, gradually changing to rose and pink with yellow or orange snow, till the last rays of the sun have gone, leaving the mountains dyed a ruddy crimson, with the snows showing a pale creamy green by contrast. Looking downward from the mountains the valley in the sunshine has the hues of the opal: the pale reds of the *karewa*, the vivid light greens of the young rice, and the darker shades of the groves of trees relieved by sunlight sheets, gleams of water, and soft blue haze give a combination of tints reminding one irresistibly of the changing hues of that gem. It is impossible in the scope of this article to do justice to the beauty and grandeur of the mountains of Kashmīr, or to enumerate the lovely glades and forests, visited by so few. Much has been written of the magnificent scenery of the Sind and Liddar valleys, and of the gentler charms of the Lolāb, but the equal beauties of the western side of Kashmīr have hardly been described. Few countries can offer anything grander than the deep-green mountain tarn, Konsanāg, in the Panjāl range, the waters of which make a wild entrance into the valley over the splendid cataract of Arabal, while the rolling grass mountain called Tosh Maidān, the springy downs of Raiyār looking over the Suknāg river as it twines, foaming down from the mountains, the long winding park known as Yusumarg, and lower down still the little hills which remind one of Surrey, and Nilnāg with its pretty lake screened by the dense forests, are worthy to be seen.

As one descends the mountains and leaves the woodland

glades, cultivation commences immediately, and right up to the fringe of the forests maize is grown and walnut-trees abound. A little lower down, at an elevation of about 7,000 feet, rice of a hardy and stunted growth is found, and the shady plane-tree appears. Lower still superior rices are grown, and the watercourses are edged with willows. The side valleys which lead off from the vale of Kashmīr, though possessing distinctive charms of their own, have certain features in common. At the mouth of the valley lies the wide delta of fertile soil on which the rice with its varying colours, the plane-trees, mulberries, and willows grow luxuriantly; a little higher up the land is terraced and rice still grows, and the slopes are ablaze with the wild indigo, till at about 6,000 feet the plane-tree gives place to the walnut, and rice to millets. On the left bank of the mountain river endless forests stretch from the bottom of the valley to the peaks; and on the right bank, wherever a nook or corner is sheltered from the sun and the hot breezes of India, the pines and firs establish themselves. Farther up the valley, the river, already a roaring torrent, becomes a veritable waterfall dashing down between lofty cliffs, whose bases are fringed with maples and horse-chestnuts, white and pink, and millets are replaced by buckwheat and Tibetan barley. Soon after this the useful birch-tree appears, and then come grass and glaciers, the country of the shepherds.

Karewas. Where the mountains cease to be steep, fan-like projections with flat arid tops and bare of trees run out towards the valley. These are known as *karewa*. Sometimes they stand up isolated in the middle of the valley, but, whether isolated or attached to the mountains, the *karewa* presents the same sterile appearance and offers the same abrupt walls to the valley. The *karewas* are pierced by mountain torrents and seamed with ravines. Bearing in mind that Kashmīr was once a lake, which dried up when nature afforded an outlet at Bāramūla, it is easy to recognize in the *karewa* the shelving shores of a great inland sea, and to realize that the inhabitants of the old cities, the traces of which can be seen on high bluffs and on the slope of the mountains, had no other choice of sites, since in those days the present fertile valley was buried beneath a waste of water.

Lakes and springs. Kashmīr abounds in mountain tarns, lovely lakes, and swampy lagoons. Of the lakes the Wular, the Dal, and the Manasbal are the most beautiful. It is also rich in springs, many of which are thermal. They are useful auxiliaries to the mountain streams in irrigation, and are sometimes the sole

sources of water, as in the case of Achabal, Vernāg, and Kokarnāg on the south, and Arpal on the east. Islāmābād or Anantnāg, 'the place of the countless springs,' sends out numerous streams. One of these springs, the Maliknāg, is sulphurous, and its water is highly prized for garden cultivation. The Kashmīris are good judges of water. They regard Kokarnāg as the best source of drinking-water, while Chashma Shāhi above the Dal Lake stands high in order of merit.

Srīnagar and the Jhelum.

It is time now for the traveller who has been resting in Srīnagar to set out on the great northern road which leads to Gilgit. He will have admired the quaint, insanitary city lying along the banks of the Jhelum, with a length of 3 miles and an average breadth of $1\frac{1}{4}$ miles on either side of the river. The houses vary in size from the large and spacious brick palaces of the Pandit aristocrat and his 500 retainers, warmed in the winter by *hammāms*, to the doll house of three storeys, where the poor shawl-weaver lives his cramped life, and shivers in the frosty weather behind lattice windows covered with paper. In the spring and summer the earthen roofs of the houses, resting on layers of birch-bark, are bright with green herbage and flowers. The canals with their curious stone bridges and shady waterway, and the great river with an average width of eighty yards, spanned by wooden bridges, crowded with boats of every description, and lined by bathing boxes, are well worth studying. The wooden bridges are cheap, effective, and picturesque, and their construction is ingenious, for in design they appear to have anticipated the modern cantilever principle. Old boats filled with stones were sunk at the sites chosen for pier foundations. Piles were then driven and more boats were sunk. When a height above the low-water level was reached, wooden trestles of *deodār* were constructed by placing rough-hewn logs at right angles. As the structure approached the requisite elevation to admit of *chakwāris* (house-boats) passing beneath, *deodār* logs were cantilevered. This reduced the span, and huge trees were made to serve as girders to support the roadway. The foundations of loose stones and piles have been protected on the upstream side by planking, and a rough but effective cut-water made. The secret of the stability of these old bridges may, perhaps, be attributed to the skeleton piers offering little or no resistance to the large volume of water brought down at flood-time. It is true that the heavy floods of 1893 swept away six out of the seven city bridges, and that the cumbrous piers tend to narrow the waterway, but it should be remembered

that the old bridges had weathered many a serious flood. Not long ago two of the bridges, the Habba Kadal and the Zaina Kadal, had rows of shops on them reminding one of Old London Bridge, but these have now been cleared away.

Srīnagar to Gilgit.

The distance by road from Srīnagar to Gilgit is 228 miles, and the traveller can reach Bandipura at the head of the Wular Lake by boat or by land. The Gilgit road, which cost the Kashmīr State, in the first instance, 15 lakhs, is a remarkable achievement, and was one of the greatest boons ever conferred on the Kashmīri subjects of the Mahārājā. Previous to its construction supplies for the Gilgit garrison were carried by impressed labourers, many of whom perished on the passes, or returned crippled and maimed by frost-bite on the snow or accident on the goat paths that did duty for roads. The journey to Gilgit before 1890 has been aptly compared with the journey to Siberia. Now, supplies are carried on ponies and the name Gilgit is no longer a terror to the people of Kashmīr.

From Bandipura a steep ascent leads to the Raj Diāngan pass (11,800 feet), a most dreaded place in the winter months, when the cold winds mean death to man and beast. Thence through a beautifully wooded and watered country, past the lovely valley of Gurais, down which the Kishangangā flows, the traveller has no difficulties till he reaches the Burzil pass (13,500 feet), below which the summer road to Skārdu across the dreary wastes of the Deosai plains branches off to the north-east. This is a very easy pass in summer, but is very dangerous in a snowstorm or high wind.

Descending from the Burzil the whole scene changes. The forests and vegetation of Kashmīr are left behind, the trees are few and of a strange appearance, and the very flowers look foreign. It is a bleak and rugged country, and when Astor (7,853 feet) is left the sense of desolation increases. Nothing can be more dreary than the steep descent from Doian down the side of the arid Hattu Pīr into the sterile waste of the Indus valley. It is cool at Doian (8,720 feet); it is stifling at Rāmghāt (3,800 feet), where one passes over the Astor river by a suspension bridge. The old construction was a veritable bridge of sighs to the Kashmīr convicts who were forced across the river and left to their fate—starvation or capture by the slave-hunters from Chilās. A little cultivation at Bunji relieves the eye; but there is nothing to cheer the traveller until the Indus has been crossed by a fine bridge, and 30 miles farther the pleasant oasis of Gilgit is reached.

The Indus valley is a barren dewless country. The very river with its black water looks hot, and the great mountains are destitute of vegetation. The only thing of beauty is the view of the snowy ranges, and Nanga Parbat in the rising sun seen from the crossing of the Indus river to Gilgit sweeps into oblivion the dreadful desert of sands and rock. Gilgit (4,890 feet) itself is fertile and well watered. The mountains fall back from the river, and leave room for cultivation on the alluvial land bordering the right bank of the Gilgit river, a rare feature in the northern parts of the Mahārājā's dominion.

Another route giving a general idea of the country runs from west to east, from Kohāla on the Jhelum to Leh, about 5 miles beyond the Indus. A good road from Rāwalpindi brings the traveller to Kohāla, where he crosses the Jhelum by a bridge, and enters the territories of Jammu and Kashmīr. The cart-road passes from Kohāla to Srīnagar, a distance of 132 miles, by easy gradients. As far as Bāramūla the road is close to the river, but for the most part at a great height above it, and the scenery is beautiful. At Muzaffarābād the Kishangangā river joins the Jhelum, and here the road from Abbottābād and Garhi Habīb-ullah connects with the Kashmīr route. The road runs along the left bank of the Jhelum, through careful terraced cultivation, above which are pine forests and pastures. It carries a very heavy traffic, but owing to the formation of the country it is liable to constant breaches, and is expensive to keep in repair. Kohāla to Leh.

From Uri a road runs south to the country of the Rājā of Pūnch, the chief feudatory of the Mahārājā, crossing the Hāji pass (8,500 feet). At Bāramūla the road enters the valley of Kashmīr, and runs through a continuous avenue of poplars to Srīnagar. In bygone days this route, known as the Jhelum valley road—now the chief means of communication with India—was little used. The Bambās and Khakhās, who still hold the country, were a restless and warlike people; and the numerous forts that command the narrow valley suggest that the neighbourhood was unsafe for the ordinary traveller. The construction of the road from Kohāla to Bāramūla cost the State nearly 22 lakhs.

From Srīnagar to Leh is 243 miles. The first part of the journey runs up the Sind valley, perhaps the most exquisite scenery in Kashmīr. Fitful efforts are made from time to time to improve this important route, but it still remains a mere fair-weather track. The Sind river thunders down the

valley, and the steep mountains rise on either side, the northern slopes covered with pine forest, the southern bare and treeless. At Gagangir the track climbs along the river torrent to Sonāmarg (8,650 feet), the last and highest village in the Sind valley, if we except the small hamlet of Nilagrar some 2 miles higher up. Sonāmarg is a beautiful mountain meadow surrounded by glaciers and forests. It is a miserable place in the winter time, but it is of great importance to encourage a resident population. The chief staples of cultivation are *grim*, or Tibetan barley, and buckwheat. It is good to turn loose the baggage ponies to graze on the meadow grasses; for in a few more marches one passes into a region like the country beyond the Burzil on the road to Gilgit, a land devoid of forests and pastures, 'a desert of bare crags and granite dust, a cloudless region always burning or freezing under the clear blue sky.' The Zoji La (11,300 feet) is the lowest depression in the great Western Himālayas which run from the Indus valley on the Chilās frontier. Over this high range the rains from the south hardly penetrate, and the cultivation, scanty and difficult, depends entirely on artificial canals. The ascent to the Zoji La from Kashmīr is very steep, the descent to the elevated table-land of Tibet almost imperceptible. For five marches the route follows the course of the Drās river, through a desolate country of piled up rocks and loose gravel. At Chanagund the road to Skārdu crosses the Drās river by a cantilever bridge, 4 miles above the junction of the Drās and Suru rivers, and about 8 miles farther on the Indus receives their waters. But the steep cliffs of the Indus offer no path to the traveller, and the track leaves the Drās river, and turns in a southerly direction to Kargil, a delightful oasis. Then the road abandons the valleys and ascends the bare mountains. The dreary scenery is compensated by the cloudless pale blue sky and the dry bracing air so characteristic of Ladākh. Through gorges and defiles the valley of Shergol is reached, the first Buddhist village on the road. Thenceforward the country is Buddhist, and the road runs up and down over the Namika La (13,000 feet) and over the Fotu La (13,400 feet), the highest point on the Leh road. Along the road near the villages are Buddhist monasteries, *manis* (walls of praying stones) and *chortens*, where the ashes of the dead mixed with clay and moulded into a little idol are placed, and at Lamayaru there is a wilderness of monuments. Later, the Indus is crossed by a long cantilever bridge; and the road runs along the right

bank through the fertile oasis of Khalsi, then through the usual desert with an occasional patch of vegetation to Leh (11,500 feet), the capital of Western Tibet and of Western Buddhism, and the trade terminus for caravans from India and from Central Asia. It is a long and difficult road from Leh to Yārkand, 482 miles, over the Khardung La, the Sasser La, and the Karakoram pass of between 17,000 and 19,000 feet altitude, where the useful yak (*Bos grunniens*) relieves the ponies of their loads when fresh snow has fallen, or serves unladen to consolidate a path for the ponies.

A brief description may be given of one more of the many routes that follow the rivers and climb the mountains—the route from Leh through Baltistān to Astor on the Gilgit road. At Khalsi, where the Srīnagar-Leh road crosses the Indus, the track keeps to the right bank of the Indus, and passing down the deep gorge of the river comes to a point where the stupendous cliffs and the roaring torrent prevent farther progress. There the traveller strikes away from the Indus and ascends the mountains to the Chorbat pass (16,700 feet), covered with snow even in July. From the pass, across the valley of the Shyok river, the great Karakoram range, some 50 miles away, comes into view. An abrupt descent carries the traveller from winter into hot summer; and by a difficult track which in places is carried along the face of the cliff by frail scaffolding (*pari*), following the course of the Shyok river, smoothly flowing between white sands of granite, and passing many pleasant oases, one comes to the grateful garden of Khapallu, a paradise to the simple Baltis. Crossing the united waters of the Shyok and the Indus on a small skin raft, the traveller arrives at Skārdu (7,250 feet), the old capital of Baltistān. Here the mountains on either side of the Indus recede, and the sandy basin, about 5 miles in breadth, is partially irrigated by water from the pretty mountain lake of Satpura and carefully cultivated. Looking across the Indus to the north, the Shigar valley, the garden of Baltistān, with its wealth of fruit trees is seen. There the cultivator adds to his resources by washing gold from the sands of the river. From Skārdu the direct route to Gilgit follows the Indus, which is crossed at Rondu by a rope bridge so long as to be most trying to the nerves, but a fair-weather track over the Banak pass lands the traveller on the Gilgit road at Astor.

Leh to Astor.

It is difficult to give a general idea of a country so diversified as Kashmīr and Jammu. As will be seen in the section on history, a strange destiny has brought people of distinct races,

languages, and religions, and countries of widely different physical characteristics, under the rule of the Mahārājā.

Mountain and river systems.

The Kashmīr territory may be divided physically into two areas: the north-eastern, comprising the area drained by the Indus with its tributaries; and the south-western, including the country drained by the Jhelum with its tributary the Kishangangā, and by the Chenāb. The dividing line or watershed is formed by the great central mountain range which runs from Nanga Parbat, overhanging the Indus on the north-west, in a south-easterly direction for about 240 miles till it enters British territory in Lāhul.

South-western area.

The south-western area may, following the nomenclature of Mr. Drew, in its turn be geographically divided into three sections: the region of the outer hills, the middle mountains, and the Kashmīr Valley.

Outer hills.

Approaching Kashmīr from the plains of the Punjab, the boundary is not at the foot of the hills, but embraces a strip of the great plains from 5 to 15 miles wide, reaching from the Rāvi to the Jhelum. As is generally the case along the foot of the Western Himālayas, this tract of flat country is somewhat arid and considerably cut up by ravines which carry off the flood-water of the monsoon. A fair amount of cultivation is found on the plateaux between these ravines, though, being entirely dependent on the rainfall, the yield is somewhat precarious. The height of this tract may be taken at from 1,100 to 1,200 feet above sea-level.

Passing over the plain a region of broken ground and low hills is reached, running mainly in ridges parallel to the general line of the Himālayan chain. These vary in height from 2,000 to 4,000 feet, and are largely composed of sandstone, being in fact a continuation of the Siwālik geological formation. Lying between these parallel ridges are a series of valleys or *dūns*, fairly well populated, in the east by Dogrās, and in the west by Chibs. These hills are sparsely covered with low scrub bushes, the *chīr* (*Pinus longifolia*) gradually predominating as the inner hills are reached. Beyond these lower hills rise the spurs of a more mountainous district.

The middle mountains.

The scope of this region, as defined by Mr. Drew, has been somewhat extended, and includes the range which forms the southern boundary of the Kashmīr Valley, known as the Panjāl range, and its continuation eastwards beyond the Chenāb. This tract is about 180 miles long and varies in width from 25 to 35 miles. The portion lying between the Jhelum and Chenāb is formed by the mass of mountainous spurs running

down from the high Panjāl range which forms its northern limit. The Panjāl itself, extending from Muzaffarābād on the Jhelum to near Kishtwār on the Chenāb, is a massive mountain range, the highest central portion to which the name is really applied having a length of 80 miles, with peaks rising to 14,000 and 15,000 feet. From the southern side a series of spurs branch out, which break up the ground into an intricate mountain mass cut into by ravines or divided by narrow valleys.

The elevation of these middle mountains is sufficient to give a thoroughly temperate character to the vegetation. Forests of Himālayan oak, pine, spruce, silver fir, and *deodār* occupy a great part of the mountain slopes; the rest, the more sunny parts, where forest trees do not flourish, is, except where rocks jut out, well covered with herbage, with plants and flowers that resemble those of Central or Southern Europe. East of the Chenāb river rises a somewhat similar mass of hills, forming the district of Bhadarwāh, with peaks varying from 9,000 to 14,000 feet in height. These culminate in the high range which forms the Chamba and Rāvi watershed in Chamba territory.

The third section of the south-western area bears a unique character in the Himālayas, consisting of an open valley of considerable extent lying completely surrounded by mountains. The boundaries are formed on the north-east by the great central range which separates the Jhelum and Indus drainage, and on the south by the Panjāl range already described. The eastern boundary is formed by a high spur of the main range, which branching off at about 75° 30′ E. runs nearly due south, its peaks maintaining an elevation of from 12,000 to 14,000 feet. This minor range forms the watershed between the Jhelum and Chenāb, separating the Kashmīr from the Wardwān valley. It eventually joins and blends with the Panjāl range about 16 miles west of Kishtwār. On the north and west, the bounding ranges of the valley are more difficult to describe. A few miles west of the spot from which the eastern boundary spur branches near the Zoji La, another minor range is given off. This runs nearly due west for about 100 miles at an elevation of from 12,000 to 13,000 feet, with a width of from 15 to 20 miles. It forms the watershed between the Jhelum on the south and its important tributary the Kishangangā on the north. After reaching 74° 15′ E. the ridge gradually curves round to the south, until it reaches the Jhelum abreast of the western end of the Panjāl range. The valley thus enclosed

Kashmīr Valley.

has a length, measured from ridge to ridge, of about 115 miles with a width varying from 45 to 70 miles, and is drained throughout by the Jhelum with its various tributaries. The flat portion is much restricted, owing to the spurs given off by the great central range, which run down into the plain, forming the well-known Sind and Liddar valleys. On the southern side the spurs from the Panjāl range project 10 to 16 miles into the plain.

North-eastern section. The north-eastern section is comprised between the great central chain on the south and the Karakoram range and its continuation on the north. It is drained by the Indus and its great tributaries, the Shyok, the Zāskār, the Suru, and the Gilgit rivers. The chief characteristic of this region, more especially of the eastern portion, is the great altitude of the valleys and plains. The junction of the Gilgit and Indus rivers is 4,300 feet above sea-level. Proceeding upstream, 80 miles farther east at the confluence of the Shyok and Indus, the level of the latter is 7,700 feet; opposite Leh, 130 miles farther up the river, its height is 10,600 feet, while near the Kashmīr-Tibet boundary in the Kokzhung district the river runs at the great height of 13,800 feet above sea-level.

Between the various streams which drain the country rise ranges of mountains, those in the central portions attaining an elevation of 16,000 to 20,000 feet, while the mighty flanking masses of the Karakoram culminate in the great peak Godwin Austen (28,265 feet). The difference of the level in the valleys between the eastern and western tracts has its natural effect on the scenery. In the east, as in the Rupshu district of Ladākh, the lowest ground is 13,500 feet above the sea, while the mountains run very evenly to a height of 20,000 or 21,000 feet. The result is a series of long open valleys, bounded by comparatively low hills having very little of the characteristics of what is generally termed a mountainous country. To the west as the valleys deepen, while the bordering mountains keep at much the same elevation, the character of the country changes, and assumes the more familiar Himālayan character of massive ridges and spurs falling steeply into the deep valleys between.

Central chain. The central chain commences in the west at the great mountain mass rising directly above the Indus, of which the culminating peak is Nanga Parbat. From this point it runs in a south-easterly direction, forming the watershed between the Indus and the Kishangangā. It quickly falls to an altitude of 14,000 to 15,000 feet, at which it continues for 50 or 60 miles. It is crossed by several passes, the best known of which are

the Burzil on the road from Kashmīr to Gilgit, and the Zoji La of 11,300 feet, over which runs the road from Srīnagar to Drās and Leh. From the Zoji La the mountains rapidly rise in elevation, the peaks attaining an altitude of 18,000 to 20,000 feet, culminating in the Nun Kun peaks which rise to a height of over 23,000 feet. Owing to their altitude these mountains are under perpetual snow, and glaciers form in every valley. The range keeps this character throughout Kashmīr territory for a distance of 150 miles to the Bārā Lācha (pass), where it passes into Spiti.

The Karakoram range is of a far more complicated character. Broadly speaking, it is a continuation of the Hindu Kush, and forms the watershed between the Central Asian drainage and the streams flowing into the Indian Ocean. From its main ridge lofty spurs extend into Kashmīr, separating the various tributaries of the Indus, the result being a stupendous mountain mass 220 miles long, with a width on the south side of the watershed of 30 to 60 miles, with peaks averaging from 21,000 to 23,000 feet, culminating on the west in the well-known Rakaposhi mountain, north of Gilgit, over 25,500 feet high, and in the mighty group of peaks round the head of the Baltoro glacier dominated by the second highest mountain in the world, Godwin Austen, whose summit is 28,265 feet above the sea. The head of every valley is the birthplace of a glacier. Many of these are of immense size, such as the Baltoro, the Biafo, and Hispar glaciers, the two latter forming an unbroken stretch of ice over 50 miles long. This great mountain barrier is broken through at one point by the Hunza stream, a tributary of the Gilgit river, the watershed at the head of which has the comparatively low elevation of about 15,500 feet. The next well-known pass lies 150 miles to the east, where the road from Leh to Yārkand leads over the Karakoram pass at an altitude of about 18,300 feet. Karakoram chain.

A description of this mountainous region would be incomplete without a reference to the vast elevated plains of Lingzhithang, which lie at the extreme north-eastern limit of Kashmīr territory. These plains are geographically allied to the great Tibetan plateau. The ground-level is from 16,000 to 17,000 feet above the sea, and such rain as falls drains into a series of salt lakes. Of vegetation there is little or none, the country being a desolate expanse of earth and rock. The northern border of this plateau is formed by the Kuenlun mountains, the northern face of which slopes down into the plains of Khotan.

An account of geology will be found in the memoir by Geology.

Mr Richard Lydekker, *The Geology of the Kashmīr and Chamba Territories and the British District of Khagan.* Mr. Lydekker differs from Mr. Drew, also an expert in geology, who held that some of the gravels at Bāramūla were of glacial origin, indicating the existence of glaciers in the valley at a level of 5,000 feet; but he has no doubts as to their existence on the Pīr Panjāl range and in the neighbourhood of the various *margs* or mountain meadows which surround the valley. The question of the glaciation and the evidences of relative changes of level within a geologically recent period is fully discussed for the Sind valley by R. D. Oldham in *Records, Geological Survey of India*, vol. xxxii, part 2.

There is abundant evidence that igneous or volcanic agencies were actively at work, as is proved by the outpouring of vast quantities of volcanic rocks; but these are not known to have been erupted since the Eocene period. Subterraneous thermal action is, however, indicated by the prevalence of numerous hot springs. The burning fields at Soiyam, of which an account is given by Lawrence, *Valley of Kashmīr*, pp. 42–3, point to the same conclusion, and the frequency of earthquakes suggests subterranean instability in this area.

The following table of geological systems in descending order is given by Mr. Lydekker for the whole State :—

	European equivalents.
Alluvial system :	
Low-level alluvia, &c.	Prehistoric.
High-level alluvia, glacial, lacustrine, and *karewa* series	Pleistocene.
Tertiary system :	
Siwālik series { Outer / Inner	} Pliocene.
Sirmūr series { Murree group	Miocene.
Sirmūr series { Sabāthu group / Indus Tertiaries }	Eocene.
Zāskār system :	
Chikkim series	Cretaceous.
Supra-Kuling series	Jura and Trias.
Kuling series	Carboniferous.
Panjāl system :	
Not generally subdivided	{ Silurian. Cambrian.
Metamorphic system :	
Metamorphosed Panjāls, &c. / Central gneiss	} Palaeozoic and Archaean.

Under the first of these systems, Mr. Lydekker has discussed

the interesting question, whether Kashmīr was once covered by a great lake. In this discussion the *karewa* already described plays an important part, and the only explanation of the upper *karewas* is that Kashmīr was formerly occupied by a vast lake of which the existing lakes are remnants. Mr. Drew estimated that at one period this lake must have reached a level of nearly 2,000 feet above the present height of the valley, but this estimate is considered far too high by Mr. Lydekker. No very satisfactory conclusions can be drawn at present as to the barrier which dammed the old lake, or as to the relative period of its existence.

A full account of the flora of Kashmīr is given by Lawrence, *Valley of Kashmīr*, chap. iv. The valley has an enormous variety of plants, and the Kashmīri finds a use for most of them. Among condiments the most important is the *zīra siyāh* (*Carum sp.*), or carraway. Under drugs, *Cannabis sativa*, the hemp plant, and *Artemisia* or *tetwan* may be mentioned. Asafoetida is found in the Astor *tahsīl*. Numerous plants yield dyes and tans, of which *Datisca cannabina*, *Rubia cordifolia*, and *Geranium nepalense* are the most familiar. Kashmīr is rich in fibres, and the people make great use of them. The two best are the *Abutilon Avicennae* and the *Cannabis sativa*. *Burza* (*Betula utilis*), the paper birch, is a most important tree to the natives. The bark is employed for various purposes, such as roofs of houses, writing paper, and packing paper. Many of the ancient manuscripts are written on birch bark. The Kashmīri neglects nothing which can be eaten as fodder. The willow, the Indian chestnut, the cotoneaster, the hawthorn, and the poplar are always lopped to provide fodder for cattle and sheep in the winter. Botany.

Excellent grasses abound, and the swamps yield most nutritious reeds and other plants. There is an abundance of food-plants, too numerous to be enumerated here. *Euryale ferox*, *Nymphaea stellata*, *N. alba*, *Nelumbium speciosum*, the exquisite pink water-lily, *Acorus Calamus*, and *Typha sp.*, the reed mace, all contribute to the Kashmīri's sustenance. Wild fruits are in profusion, and many fungi are eaten by the people. The mushroom is common, and the *morel* (*Morchella sp.*) abounds in the mountains and forms an important export to India. There are plants that are useful for hair-washes, and the herbs with medicinal properties are almost innumerable. *Macrotomia Benthami* is one of these peculiarly esteemed by the Kashmīris as a remedy for heart-affections. Among the scents may be noted *Gogal dhup* (*Jurinea macrocephala*), which

is largely exported to India, where it is used by the Hindus. The most important of the aromatic plants is the *Saussurea Lappa*. This grows at high elevations from 8,000 to 9,000 feet. The root has a scent like orris with a blend of violet. It is largely exported to China, where it is used as incense in the joss houses. It has many valuable properties, and is a source of considerable revenue to the State. There is a great variety of trees, but the oak, the holly, and the Himālayan rhododendron are unknown. Among the long list of trees may be noticed the *deodār*, the blue pine, the spruce, the silver fir, the yew, the walnut, and the Indian horse-chestnut. In the valley itself the exquisite plane-tree, the mulberry, the apricot, and the willow are perhaps the most familiar.

Fauna. Kashmīr offers great attraction to the sportsman, and for its size the valley and the surrounding mountains possess a large and varied animal kingdom. A full account of the animals and birds will be found in *The Valley of Kashmīr*, chap. v. Since that book was written game preservation has made great strides, and has prevented the extinction of the *bārasingha* (*Cervus duvauceli*) and *hangal* or Kashmīr stag (*C. cashmirianus*). Among the *Cervidae*, the musk deer (*Moschus moschiferus*) is common and its pod is valuable. Of the family *Ursidae*, the black bear, or *bomba hāpai* (*Ursus torquatus*), is very common, being a great pest to the crops and a danger to the people. The brown bear, or *lāl hāpat* (*Ursus arctus* or *isabellinus*), is still far from rare. It is partly herbivorous and partly carnivorous. Of the family *Bovidae*, the *mārkhor* (*Capra falconeri*) and the ibex (*C. sibirica*) are still to be met with. The Kashmīr *mārkhor* has from one to two complete turns in the spirals of its horns. The *tahr* or *jagla* (*Hemitragus*) is found on the Pīr Panjāl, and the serow or *rāmu* (*Nemorhaedus bubalinus*) is fairly common. The *goral* (*Cemas goral*) also occurs.

There is a considerable variety of birds. The blue heron (*Ardea cinerea*) is very common, and fine heronries exist at several places. The heron's feathers are much valued, and the right to collect the feathers is farmed out. Among game birds may be noticed the snow partridge (*Lerwa lerwa*), the Himālayan snow cock (*Tetraogallus himalayensis*), the *chikor* partridge (*Caccabis chukar*), the large grey quail (*Coturnix*), the *monal* pheasant (*Lophophorus refulgens*), the Simla horned pheasant (*Tragopan melanocephalum*) and the Kashmīr Pucras pheasant (*Pucrasin biddulphi*). The large sand-grouse (*Pterocles arenarius*) is occasionally seen. Pigeons, turtle-doves, rails, grebes, gulls, plovers, snipe, cranes, are common, and storks

are sometimes seen. Geese are found in vast flocks on the Wular Lake in the winter, and there are at least thirteen kinds of duck. The goosander and smew are also found on the Wular Lake. There are six species of eagles, four of falcons, and four of owls. Kingfishers, hoopoes, bee-eaters, night-jars, swifts, cuckoos, woodpeckers, parrots, crows in great variety, choughs, starlings, orioles, finches (12 species), buntings, larks, wagtails, creepers, tits, shrikes, warblers (14 species), thrushes (20 species), dippers, wrens, babbling thrushes, bulbuls, fly-catchers, and swallows are all familiar birds.

Among the reptiles there are two poisonous snakes, the *gunas* and the *pohur*, the bite of which is often fatal.

Fish forms an important item in the food of the Kashmīris. Vigne noticed only six different kinds, but Lawrence enumerated thirteen.

Temperature.

As the elevation varies from 1,200 feet at Jammu and 3,000 feet in the Indus valley at Bunji and Chilās to 25,000 and 26,000 feet on the highest mountain peaks, the State presents an extraordinary variety of climatic conditions. The local variations of temperature depend chiefly upon situation (i. e. whether in a valley or on the crest of a mountain range), elevation, and the amount of the winter snowfall and the period and depth of the snow accumulation. The effect of position in a valley or a mountain crest is shown by comparing the temperatures of Murree and Srīnagar. The Murree observatory is about 1,200 feet higher than the Srīnagar observatory. The mean maximum day temperature in January at Murree is 7° higher than at Srīnagar, and the mean minimum night temperature 9° higher. On the other hand, in the hottest month (June) the maximum day temperature is 1° lower at Murree than at Srīnagar, while the minimum night temperatures are almost identical. The diurnal range is 2° less in January, 7° less in June, and 14° less in October at Murree than at Srīnagar. The slow movement of the air from the higher elevations into valleys more or less completely shut in by mountains tends to depress temperature at valley stations both by day and night considerably below that at similar elevations on the crest of the Outer Himālayas, and to increase the diurnal range most largely in the dry clear months of October and November, when the sinking down of the air from the adjacent mountains has its greatest effect, and is supplemented by rapid radiation from the ground. The effect of snow accumulation in valleys in reducing temperature is very marked. At Drās and Sonāmarg, where the accumulation is usually large, the

solar heat on clear fine days in winter is utilized in melting the snow and hence exercises no influence on the air temperature. At Leh, where the ground is only occasionally concealed under a thin covering of snow, the sun even in winter usually warms the ground surface directly and thence the air. The cooling influence of snow accumulation at Drās and Sonāmarg is largely increased by the rapid radiation from the surface. The mean daily temperature is lowest in January and highest in June or July. At Srīnagar the mean temperature of January is 33·1°. The mean temperature of the hottest month (July) at Srīnagar is 74·6°. The mean temperature in January and August ranges from 25·3° to 75° at Skārdu, from 3·4° to 64·5° at Drās, from 17·7° to 61·8° at Leh, and from 38·6° to 85° (in July) at Gilgit. The most noteworthy features of the annual variation are the very rapid increase in March or April at the end of the winter, and an equally rapid decrease in October, when the skies clear after the south-west monsoon. The diurnal range is least at Gilgit (19·8°) and Srīnagar (22·4°) on the mean of the year, and greatest at Drās (31·4°) and Leh (26·3°).

Rain and snowfall. The precipitation is received during two periods, the cold season from December to April, and the south-west monsoon period from June to September. The rainfall in October and November is small in amount, and November is usually the driest month of the year. The cold-season precipitation from December to March is chiefly due to storms which advance from Persia and Baluchistān across Northern India. These disturbances occasionally give very stormy weather in Kashmīr, with violent winds on the higher elevations and much snow. The fall is large on the Pīr Panjāl range, being heaviest in January or February. In the valley and the mountain ranges to the north and east this is the chief precipitation of the year, and is very heavy on the first line of permanent snow, but decreases rapidly eastwards to the Karakoram range. The largest amount is received at Srīnagar, Drās, and Anantnāg in January. In the Karakoram region and the Tibetan plateau the winter fall is much later than on the outer ranges of the Himālayas, namely from March to May, and the maximum is received in April. The average depth of the snowfall at Srīnagar in an ordinary winter is about 8 feet. The snowfall at Sonāmarg in 1902 measured 13 feet and in 1903 about 30 feet. In April and May thunderstorms are of occasional occurrence in the valley and surrounding hills, giving light to moderate showers of rain. This hot-season rainfall is of con-

siderable importance for cultivation in the valley. From June to November heavy rain falls on the Pīr Panjāl range, and in Jammu chiefly in the months of July, August, and September. The rainfall at Jammu and Pūnch is comparable with that of the submontane Districts of the Punjab. It is more moderate in amount in the valley, which receives a total of 9·4 inches, as compared with 35·7 inches at Pūnch and 26·8 inches at Domel. The precipitation is very light to the east of the first line of the snows bordering the valley on the east, and is about 2 inches in total amount at Gilgit, Skārdu, Kargil, and Leh. Thus the south-west monsoon is the predominant feature in Jammu and Kishtwār, while in Ladākh, Gilgit, and the higher ranges the cold-season precipitation is more important. The tables on p. 82 show the average temperature and rainfall at Srīnagar and Leh for a series of years ending with 1905.

Earthquakes and floods. Earthquakes are not uncommon, and eleven accompanied by loss of life have been recorded since the fifteenth century. In 1885 shocks were felt from the end of May till the middle of August, and about 3,500 people were killed. Fissures opened in the earth, and landslips occurred. Floods are also frequently mentioned in the histories of the country, the greatest following the obstruction of the Jhelum by the fall of a mountain in A.D. 879. The great flood of 1841 in the Indus caused much loss of life and damage to property. In 1893 very serious floods took place in the Jhelum owing to continuous rain for 52 hours, and much damage was done to Srīnagar. An inundation of a yet more serious character occurred in 1903.

History. Sources. The early history of Kashmīr has been preserved in the celebrated *Rājataranginī*, by the poet Kalhana, who began to write in 1148. He gives a connected account of the history of the valley, which may be accepted as a trustworthy record from the middle of the ninth century onwards. Kalhana's work was continued by Jonarāja, who brought the history through the troubled times of the last Hindu dynasties, and the first Muhammadan rulers, to the time of the great Zain-ul-ābidīn, who ascended the throne in 1420. Another Sanskrit chronicler, Srivara, carries on the narrative to the accession of Fateh Shāh in 1486; and the last of the chronicles, the *Rājavalipataka*, brings the record down to 1586, when the valley was conquered by Akbar.

Legends. The current legend in Kashmīr relates that the valley was once covered by the waters of a mighty lake, on which the

goddess Pārvatī sailed in a pleasure-boat from Harāmukh mountain in the north to the Konsanāg lake in the south. In her honour the lake was known as the Satīsar, or 'lake of the virtuous woman.' The country-side was harassed by a demon popularly known as Jaldeo, a corruption of Jalodbhava. Kāsyapa, the grandson of Brahmā, came to the rescue, but for some time the amphibious demon eluded him, hiding under the water. Vishnu then intervened and struck the mountains at Bāramūla with his trident. The waters of the lake rushed out, but the demon took refuge in the low ground near where Srīnagar now stands, and baffled pursuit. Then Pārvatī cast a mountain on him, and so destroyed the wicked Jaldeo. The mountain is known as Hara Parbat, and from ancient times the goddess has been worshipped on its slopes. When the demons had been routed, men visited the valley in the summer; and as the climate became milder they remained for the winter. Little kingdoms sprang up and the little kings quarrelled among themselves, with the usual result that a bigger king was called in to rule the country.

Early rulers.

The *Rājataranginī* opens with the name of the glorious king of Kashmīr, Gonanda, 'worshipped by the region which Kailāsa lights up, and which the tossing Gangā clothes with a soft garment.' Nothing is known of the founder of the dynasty, though the genealogists of Jammu trace a direct descent from Gonanda to the present ruler. Mention is made of the pious Asoka and of his town, Srīnagar, with its ninety-six lakhs of houses resplendent with wealth. This town probably stood in the neighbourhood of the Takht-i-Sulaimān. Next come the three kings, Hushka, Jushka, and Kanishka, to be identified with the Huvishka, Vāsudeva, and Kanishka, Kushan rulers of Northern India at the beginning of the Christian era. According to the chronicles, in the days of these kings Kashmīr was in the possession of the Buddhists, and Buddhist tradition asserts that the third great council held by Kanishka took place in Kashmīr. The Buddhist creed and the Brāhmanical cult seem to have existed peaceably side by side; but five hundred years later Hiuen Tsiang found the mass of the people Hindu, and the monasteries few and partly deserted. There is good reason to believe that the Kashmīris were, from the earliest period, chiefly Saivas.

White Huns.

About A.D. 528, Mihirakula, the king 'cruel as death,' ruled over Kashmīr. He was the leader of the White Huns or Ephthalites. The people still point to a ridge on the Pīr

Panjāl range, Hastīvanj, where the king, to amuse himself, drove one hundred elephants over the precipice, enjoying their cries of agony. King Gopāditya was a pleasing contrast to the cruel king, and did much to raise the Brāhmans, and to advance their interests.

Pravarasena II reigned in the sixth century and, returning from his victorious campaigns abroad, built a magnificent city on the site of the present capital of Kashmīr. The city was known as Pravarapura, and is mentioned by Hiuen Tsiang at the time of his visit (A.D. 631) as the new city. The site chosen has many advantages, strategic and commercial, but it is liable to floods. Many subsequent rulers endeavoured to move the site of the capital, but their efforts failed. Among these was the celebrated Lalitāditya, who ruled in the middle of the eighth century, and received an investiture from the emperor of China. A great and victorious soldier, he subdued the kings of India and invaded Central Asia. After twelve years of successful campaigning he returned to Kashmīr, enriched with spoil and accompanied by artisans from various countries, and built a magnificent city, Paraspur (Parihasapura). To give this new town pre-eminence, he burnt down Pravarapura. Lalitāditya also built the splendid temple of Mārtand. Before leaving for further conquests in Central Asia, from which he never returned, the king gave his subjects some excellent advice. He warns them against internal feuds, and says that if the forts are kept in repair and provisioned they need fear no foe. In a country shut in by mountains, discipline must be strict, and the cultivators must not be left with grain more than sufficient for a year's requirements. Cultivators should not be allowed to have more ploughs or cattle than are absolutely necessary, or they will trespass on their neighbours' fields. They should be repressed, and their style of living must be lower than that of the city people, or the latter will suffer. These words spoken some 1,200 years ago have never been forgotten; and rulers of various races and religions have followed Lalitāditya's policy, and have sternly subordinated the interests of the cultivators to the comfort of the city.

Hindu dynasties.

Sankara Varman (883–902) was another great conqueror; and it is stated that, though Kashmīr had fallen off in population, he was able to lead out an army of 900,000 foot, 300 elephants, and 100,000 horse. Sankara Varman was avaricious and profligate. He plundered Paraspur in order to raise the fame of his own town, now known as Pattan.

Decay of Hindu rulers.

There were signs of decay, and the last of the strong Hindu rulers was queen Didda (950–1003). Then followed the Lohara dynasty. Central authority was weakened, the country was a prey to civil war and violence, and the Damaras, skilled in burning, plundering, and fighting, harassed the valley. The last of this line was Jaya Simha, or Simha Deva (1128); and in his reign the Tartar, Khān Dalcha, invaded Kashmīr, and after great slaughter set fire to Srīnagar. He subsequently perished in the passes on his retreat from Kashmīr, overtaken by snow. Rām Chand, the commander-in-chief of the Kashmīr army, had meanwhile kept up some semblance of authority in the valley, and had routed the Gaddis from Kishtwār. With Rām Chand were two soldiers of fortune, Rainchan Shāh from Tibet and Shāh Mirza from Swāt.

Progress of Islām.

Rainchan Shāh quarrelled with Rām Chand, and with the assistance of the Ladākhis attacked and killed him. He married Kuta Rānī, the daughter of Rām Chand, and embracing Islām became the first Muhammadan king of Kashmīr, but died after a short reign of two and a half years. At this juncture Udayanadeva appeared, who was the brother of Rājā Simha Deva and had fled to Kishtwār. He married the widow, Kuta Rānī, and reigned for fifteen years. On his death Kuta Rānī assumed power for a short time, and committed suicide rather than marry Shāh Mirza, who now declared himself king. He was the first of the line known as Salātīn-i-Kashmīr, and took the name of Shams-ud-dīn. In 1394 Sultān Sikandar, known for his fierce zeal as *butshikan* or 'Iconoclast,' was king of Kashmīr. He was a gloomy fanatic, and destroyed nearly all the grand buildings and temples of his Hindu predecessors. To the people he offered death, conversion, or exile. Many fled; many were converted to Islām; many were killed, and it is said that Sikandar burnt seven maunds of sacred threads worn by the murdered Brāhmans. By the end of his reign all Hindu inhabitants of the valley, except the Brāhmans, had probably adopted Islām.

Muhammadan rulers.

In 1420 Zain-ul-ābidīn succeeded. He was wise, virtuous, and frugal, and very tolerant to the Brāhmans. He remitted the poll-tax on Hindus, encouraged the Brāhmans to learn Persian, repaired some of the Hindu temples, and revived Hindu learning. Hitherto in Kashmīr Sanskrit had been written in Sarada, an older sister of the Devanāgari character. The introduction of Persian, as the official language, divided the Brāhmans into three subdivisions: the Kārkuns, who

entered official life; the Bāchabatts, who discharged the function of the priesthood; and the Pandits, who devoted themselves to Sanskrit learning. Towards the end of this good and useful reign the Chakks sprang into mischievous prominence. Zain-ul-ābidīn drove them out of the valley, but in the time of his weak successors they returned and eventually seized the government of Kashmīr. Turbulent and brave, the Chakks were not fitted for administration. Yākūb Khān, the last of the line, offered a stubborn resistance to Akbar, and with the help of the Bambās and Khakhās routed the Mughal on his first attempt on the valley (1582). But later, not without difficulty and some reverses, Kashmīr was finally conquered (1586).[1]

The Mughals.

Akbar visited the valley three times. He built a strong fort on the slopes of the Hara Parbat, paying high wages, and dispensing with forced labour. His revenue minister, Todar Mal, made a very summary record of the fiscal conditions of the valley. Jahāngīr was greatly attached to Kashmīr. He laid out lovely pleasure-gardens; around the Dal Lake were 777 gardens, yielding a revenue of 1 lakh from roses and bed musk. Much depended on the character of the governors. Alī Mardān Khān, the best of these, built a splendid series of *sarais* on the Pīr Panjāl route to India, and grappled with a famine with energy and success. Aurangzeb visited the valley only once; but in that brief time he showed his zeal against the unbelievers, and his name is still execrated by the Brāhmans. Then followed the disorder of decay, and in 1751 the *Sūbah* of Kashmīr was practically independent of Delhi.

The Durrānis and Sikhs.

From the following year the unfortunate Kashmīris experienced the cruel oppression of Afghān rule, the short but evil period of the Durrāni. Governors from Kābul plundered and tortured the people indiscriminately, but reserved their worst cruelties for the Brāhmans, the Shiahs, and the Bambās of the Jhelum valley. In their agony the people of Kashmīr turned with hope to the rising power of Ranjīt Singh of Lahore. In 1814 a Sikh army advanced by the Pīr Panjāl, Ranjīt Singh watching the operations from Pūnch. This expedition miscarried; but in 1819 Misr Dīwān Chand, Ranjīt Singh's great general, accompanied by Gulāb Singh of Jammu, overcame Muhammad Azīm Khān, and entered Shupiyan. In comparison with the

[1] Kashmīr had been attacked from the side of Ladākh by Mirzā Haidar (the author of the *Tārīkh-i-Rashīdī*) in 1532, and again invaded from the south in 1540, and ruled by him (nominally on behalf of the emperor Humāyūn) until his death eleven years later.

Afghāns, the Sikhs came as a relief to the unfortunate Kashmīris, but their rule was harsh and oppressive.

Sher Singh, the reputed son of Ranjīt Singh, was a weak governor, and his name is remembered in connexion with the terrible famine which visited the valley. The best of the Sikh governors was Colonel Miān Singh (1833), who is still spoken of with gratitude, and did his best to repair the ravages of the famine. He was murdered by mutinous soldiers, and was succeeded by Shaikh Ghulām Muhī-ud-dīn in 1842. During his government the Bambās, under Sher Ahmad, inflicted great losses on the Sikhs. In 1845 Imām-ud-dīn succeeded his father as governor.

The Dogrās. Gulāb Singh.

The history of the State, as at present constituted, is practically the history of one man, a Dogrā Rājput, Gulāb Singh of Jammu. Lying off the high roads of India, and away from the fertile plains of the Punjab, the barren hills of the Dogrās had not attracted the notice of the Mughal invaders of India. Here lived a number of small Rājās, and it appears that from very early times the little kingdom of Jammu was locally of some importance. Towards the end of the eighteenth century the power of the Jammu ruler had extended east as far as the Rāvi, and west to the Chenāb; but the power waned and waxed according to the fortunes of petty and chronic warfare. To the east at Basoli and Kishtwār were independent Rājput chiefs, while to the north-west were the Muhammadan rulers of Bhimbar and Rājaori, descendants of Hindu Rājputs. These two states lay on the Mughal route to Kashmīr, and so came under the influence of Delhi. Up the Jhelum valley, the country was held by small independent Muhammadan chiefs, whose title of Rājā suggests their Hindu origin.

Jammu.

About the middle of the eighteenth century Rājā Ranjīt Deo was the ruler of Jammu. He was a man of some mark, and his capital flourished; but at his death about 1780, his three sons quarrelled. The Sikhs were invoked, and Jammu was plundered. From Ranjīt Deo's death to 1846, the Dogrā country became tributary to the Sikh power. Gulāb Singh, Dhyān Singh, and Suchet Singh were the great-grandsons of Sūrat Singh, youngest brother of Ranjīt Deo. They were soldiers of fortune, and as young men sought service at the court of Ranjīt Singh of Lahore. They rapidly distinguished themselves; and Gulāb Singh, for his service in capturing the Rājā of Rājaori, who was fighting the Sikhs, was created Rājā of Jammu in 1820. Dhyān Singh obtained the principality of Pūnch, a hilly country between the Jhelum and the Pīr

Panjāl range, north of Rājaori; while Suchet Singh received Rāmnagar, west by north of Jammu.

Ranjīt Singh had found that the control of the Dogrā country was a difficult task, and his policy of enlisting the services of able Dogrās was at once obvious and prudent. The country was disturbed, each man plundered his neighbour, and Gulāb Singh's energies were taxed to the utmost in restoring order. He was a man of extraordinary power, and very quickly asserted his authority. His methods were often cruel and unscrupulous, but allowances must be made. He believed in object-lessons, and his penal system was at any rate successful in ridding the country of crime. He kept a sharp eye on his officials, and a close hand on his revenues. Rapidly absorbing the power and possessions of the feudal chiefs around him, after ten years of laborious and consistent effort, he and his two brothers became masters of nearly all the country between Kashmīr and the Punjab, save Rājaori. Bhadarwāh fell easily into the hands of Gulāb Singh after a slight resistance. In Kishtwār, the minister, Wazīr Lakhpat, quarrelled with the Rājā and sought the assistance of Gulāb Singh, who at once moved up with a force, and the Rājā surrendered his country without fighting.

Conquest of Ladākh.

His easy successes in Kishtwār, which commanded two of the roads into Ladākh, probably suggested the ambitious idea of the conquest of that unknown land. The difficulties of access offered by mountains and glaciers were enormous; but the brave Dogrās under Gulāb Singh's officer, Zorāwar Singh, never hesitated, and in two campaigns the whole of Ladākh passed into the hands of the Jammu State. It is interesting to notice that the Dogrās did not pillage the rich monastery of Himis, which saved itself by allowing the army in ignorance of its locality to pass the gorge leading to the Himis valley, and by then sending a deputation with an offer of free rations while in Ladākh territory. The agreement made was respected by both parties.

A few years later, in 1840, Zorāwar Singh invaded Baltistān, captured the Rājā of Skārdu, who had sided with the Ladākhis, and annexed his country. The following year (1841) Zorāwar Singh while invading Tibet was overtaken by winter, and being attacked when his troops were disabled by cold, perished with nearly all his army. Whether it was policy or whether it was accident, by 1840 Gulāb Singh had encircled Kashmīr.

Acquisition of Kashmīr.

In the winter of 1845 war broke out between the British and the Sikhs. Gulāb Singh contrived to hold himself aloof

till the battle of Sobraon (1846), when he appeared as a useful mediator and the trusted adviser of Sir Henry Lawrence. Two treaties were concluded. By the first the State of Lahore handed over to the British, as equivalent for one crore of indemnity, the hill countries between the rivers Beās and the Indus; by the second the British made over to Gulāb Singh for 75 lakhs all the hilly or mountainous country situated to the east of the Indus and west of the Rāvi. Kashmīr did not, however, come into the Mahārājā's hands without fighting. Imām-ud-dīn, the Sikh governor, aided by the restless Bambās from the Jhelum valley, routed Gulāb Singh's troops on the outskirts of Srīnagar, killing Wazīr Lakhpat. Owing, however, to the mediations of Sir Henry Lawrence, Imām-ud-dīn desisted from opposition and Kashmīr passed without further disturbances to the new ruler. At Astor and Gilgit the Dogrā troops relieved the Sikhs, Nathu Shāh, the Sikh commander, taking service under Gulāb Singh. Not long afterwards the Hunza Rājā attacked Gilgit territory. Nathu Shāh retorted by leading a force to attack the Hunza valley; he and his force were destroyed, and Gilgit fort fell into the hands of the Hunza Rājā, along with Punial, Yāsīn, and Darel. The Mahārājā sent two columns; one from Astor and one from Baltistān, and after some fighting Gilgit fort was recovered. In 1852, partly by strategy, partly by treachery, the Dogrā troops were annihilated by the bloodthirsty Gaur Rahmān of Yāsīn, and for eight years the Indus formed the boundary of the Mahārājā's territories.

Ranbīr Singh.

Gulāb Singh died in 1857; and when his successor, Ranbīr Singh, had recovered from the strain caused by the Mutiny, in which he had loyally sided with the British, he determined to recover Gilgit, and to rehabilitate the reputation of the Dogrās on the frontier. In 1860 a force under Devi Singh crossed the Indus, and advanced on Gaur Rahmān's strong fort at Gilgit. Gaur Rahmān had died just before the arrival of the Dogrās. The fort was taken; and since then the Mahārājās of Jammu and Kashmīr have held it, to their heavy cost, and somewhat doubtful advantage.

Ranbīr Singh was a model Hindu: devoted to his religion and to Sanskrit learning, but tolerant to other creeds. He was in many ways an enlightened man, but he lacked his father's strong will and determination, and his control over the State officials was weak. The latter part of his life was darkened by the dreadful famine in Kashmīr, 1877–9; and in September, 1885, he was succeeded by his eldest son, the present Mahārājā

Pratāp Singh, G.C.S.I. He bears the hereditary title of Mahārājā, and receives a salute of 19 guns, increased to 21 in his own territory.

Through all these vicissitudes of government and changes in religion the Kashmīri has remained unaltered. Mughal, Afghān, Sikh, and Dogrā have left no impression on the national character; and at heart the people of the valley are Hindus, as they were before the time of Sikandar Shāh. The isolation from the outer world accounts for this stable unchanging nationality, and passages in the *Rājataranginī* show that the main features of the national character were the same in the early period of Hindu rule as they are now.

The valley of Kashmīr is holy land, and everywhere one finds remains of ancient temples and buildings called by the present inhabitants, though without historical foundation, Pāndavlari, 'the houses of the Pāndavas.' These ancient buildings, though more or less injured by iconoclasts, vandal builders, earthquakes, and, as Cunningham thinks, by gunpowder, are composed of a blue limestone capable of taking the highest polish, and of great solidity. They defy weather and time, while the later works of the Mughals, the mosques of Aurangzeb and the pleasure-places of Salīm and Nūr Mahal, are crumbling away and possess little or none of their pristine beauty. Archaeology.

The Hindu buildings of Kashmīr have been described by Sir Alexander Cunningham and Mr. F. S. Growse[1]. They exhibit traces of the influence of Grecian art, and are distinguished by the graceful elegance of their outlines, by the massive boldness of their parts, and by the happy propriety of their decorations. Characteristic features are the lofty pyramidal roofs, trefoiled doorways covered by pyramidal pediments, and the great width of the space between columns.

Among the numerous temples two may be noticed—Mārtand and Payech; the first for its grandeur, and the second for its excellent preservation. Mārtand, the temple of the Sun, stands on a sloping *karewa*, about 3 miles east of Islāmābād, overlooking the forest view in Kashmīr. The great structure was built by Lalitāditya in the eighth century. Kalasa came here at the approach of death and expired at the feet of the sacred image (1089). In the time of Kalhana the chronicler, the great quadrangular courtyard was used as a fortification, and the sacred image is said to have been destroyed by Sikandar, the iconoclast. Mārtand temple.

The building consists of one lofty central edifice, with a

[1] *Calcutta Review*, No. CVII.

small detached wing on each side of the entrance, the whole standing in a large quadrangle surrounded by a colonnade of eighty-four pillars with intervening trefoil-headed recesses. The length of the outer side of the wall, which is blank, is about 90 yards; that of the front is about 56 yards. The central building is 63 feet in length by 36 feet in width, and, alone of all the temples of Kashmīr, possesses, in addition to the cella or sanctuary, a choir and nave, termed in Sanskrit the *antarāla* and *arddhamanḍapa*; the nave is 18 feet square. The sanctuary alone is left entirely bare, the two other compartments being lined with rich panellings and sculptured niches. As the main building is at present entirely uncovered, the original form of the roof can be determined only by a reference to other temples and to the general form and character of the various parts of the Mārtand temple itself. It has been conjectured that the roof was pyramidal, and that the entrance chamber and wings were similarly covered. There would thus have been four distinct pyramids, of which that over the inner chamber must have been the loftiest, the height of its pinnacle above the ground being about 75 feet.

The interior must have been as imposing as the exterior. On ascending the flight of steps, now covered by ruins, the votary entered a highly decorated chamber, with a doorway on each side covered by a pediment, with a trefoil-headed niche containing a bust of the Hindu triad, and on the flanks of the main entrance, as well as on those of the side doorways, were pointed and trefoil niches, each of which held a statue of a Hindu deity. The interior decorations of the roof can only be determined conjecturally, as there do not appear to be any ornamented stones that could with certainty be assigned to it. Baron Hügel doubts that Mārtand ever had a roof; but as the walls of the temple are still standing, the numerous heaps of large stones that are scattered about on all sides suggest the idea that these belonged to the roof. Fergusson, however, thought that the roof was of wood.

Payech. Payech lies about 19 miles from Srīnagar under the Naunagri *karewa*, about 6 miles from the left bank of the Jhelum river. On the south side of the village, situated in a small green space near the bank of the stream surrounded by a few walnut and willow trees, stands an ancient temple, which in intrinsic beauty and elegance of outline is superior to all the existing remains in Kashmīr of similar dimensions. Its excellent preservation may probably be explained by its retired situation at the foot of the high table-land, which separates it by an interval of

5 or 6 miles from the bank of the Jhelum, and by the marvellous solidity of its construction. The cella, which is 8 feet square, and has an open doorway on each of the four sides, is composed of only ten stones, the four corners being each a single stone, the sculptured tympanums over the doorways four others, while two more compose the pyramid roof, the lower of these being an enormous mass, 8 feet square by 4 feet in height. It has been ascribed by General Cunningham, on grounds which, in the absence of any positive authority either way, may be taken as adequate, to Narendrāditya, who reigned from 483 to 490. Fergusson, however, considered that the temple belongs to the thirteenth century. The sculptures over the doorways are coarsely executed in comparison with the artistic finish of the purely architectural details, and are much defaced, but apparently represent Brahmā, Vishnu, Siva, and the goddess Durgā. The building is said to be dedicated to Vishnu as Sūrya or the Sun-god. Inside the cupola is rayed, so as to represent the sun; and at each corner of the square the space intervening between the angle and the line of the circle is filled up with a *jinn* or attendant, who seems to be sporting at the edge of its rays. The roof has been partly displaced, which is said to have been the result of an attempt made to take it down and remove it to the city. The interior is still occupied by a large stone *lingam.*

A table at the end of this article (p. 83) shows the distribution of population in 1901. An estimate of the number of inhabitants was made in 1873, but the first regular Census was taken in 1891. In that year the population was 2,543,952, and it rose to 2,905,578 in 1901, or by 14 per cent. To a considerable extent the increase was due to improved enumeration, as for example in Gilgit, where the number recorded rose from 16,769 to 60,885. The increase amounted to 22 per cent. in the Kashmīr province, compared with only 6 per cent. in Jammu. The density of population in the whole State is 36 persons per square mile. Details of the area of subdivisions are not available, but the density per square mile of land under cultivation varies from 64 in Muzaffarābād district to 1,295 in Gilgit, where cultivable land is scarce. There are only two towns of any size, JAMMU (36,130) and SRĪNAGAR (122,618), but the State contains 8,946 villages. Nearly half the total population lives in villages with a population of less than 500 each. Formerly, considerable numbers of Kashmīris emigrated to the Punjab, but the census results in that Province show that only 83,240 persons born in Kashmīr were Population.

enumerated there in 1901, compared with 111,775 in 1881. Statistics of age are, as usual, unreliable, and need not be referred to in detail. In the whole State there are 884 females to 1,000 males, the proportion being highest in the frontier tracts (933) and lowest in Kashmīr province (876). These results point to defective enumeration of females. Marriage is comparatively late, and less than 1 per cent. of the males under fifteen years, and about 2 per cent. of the females of the same age, are married. Taking the whole population, 53 per cent. of males and 39 per cent. of females are married. Polyandry is prevalent in Ladākh. About 34 per cent. of the population speak Kashmīri, and 15 per cent. Dogrī, while Punjābi is the tongue of nearly 30 per cent. A great variety of languages are used, in various parts of the State, by comparatively small numbers. Agriculture supports 54 per cent. of the total, and weaving and allied arts 2 per cent.

Religion. The total population includes 2,154,695 Muhammadans, 689,073 Hindus, 25,828 Sikhs, and 35,047 Buddhists. The Hindus are found chiefly in the Jammu province, where they form rather less than half the total. In the Kashmīr province they represent only 524 in every 10,000 of population, and in the frontier *wazārats* of Ladākh and Gilgit only 97 out of every 10,000 persons.

Castes. Jammu. Among the Hindus of the Jammu province, who number 626,177, the most important castes are the Brāhmans (186,000), the Rājputs (167,000), the Khattrīs (48,000), and the Thakkars (93,000). Each caste is subdivided into many sub-castes; but for practical purposes the Dogrā Rājputs do not regard the finer divisions of the ethnologist, but draw a broad distinction between the Mīān Rājputs who engage in neither trade nor agriculture, and the other Rājputs who have condescended to work for their living. The Mīāns will marry the daughters of the latter class, but will not give their own daughters in marriage to them. They have territorial names, such as Jamwāl and Jasrotia, signifying that the family is connected with Jammu and Jasrota. They mostly hold land on pepper-corn rents, cultivated by others, who take a share of the crops. The Mīān Rājput gladly serves as a soldier, by choice in the cavalry, and if there is not room for him in the Mahārājā's forces, he will enlist in the Indian army. In the Hunza-Nagar campaign and at Chitrāl the Dogrā Rājput worthily maintained his ancient reputation. As a soldier he is admirable, but as a landowner evil days are in store for him. The agriculture of the Dogrā country is un-

certain, and not over-profitable; and in the course of years the proud, gallant, and thriftless Rājput will be ousted by the sturdy Thakkars and Jats (Musalmān, 123,000; Hindu, 25,000). The Rājputs are a handsome race, wiry and active. They observe caste rules very strictly. Female infanticide was the common rule in the memory of men still middle-aged, and the *satī* of Rājā Suchet Singh's ladies is still remembered by the old men. The Khattrīs are an important people, keen and clever. They are the financiers and officials of the State, and some of the best servants of the Mahārājā have been Dogrā Khattrīs.

The Dogrās

The origin of the word Dogrā is commonly stated by the people themselves to have arisen from the fact that the cradle of the Dogrā race lies between the two holy lakes, Saroin Sar and Mān Sar, not far from Jammu. Drigartdesh, or the 'country of the two hollows,' was corrupted into Dūgar, and Dūgra became Dogrā. From Jammu stretching east along the plains of the Punjab the country is Dogrā; and all who live in that tract, whether they be Hindus, Musalmāns or Sikhs, whether high-born Rājputs or low-born menials, are known as Dogrās, and have certain national characteristics and a common tongue, which differentiate them from any of the other peoples of India. Some authorities doubt this derivation, and say that Dogrā is a corruption of the Rājasthāni word for 'hills' (*dungar*), and that when the Rājputs forced their way up north they gave this name to the hilly country.

The Dogrās hold the tract of lowland country along the British border, and the outer ranges of hills from the Manawar or Malikāni Tāwi on the west to the Rāvi river on the south-east, which is bounded towards the higher mountains by a line drawn along the hills to the south of the Budil Ilāka through Batoti and thence to the Rāvi river north-east of Basoli. From the Manawar Tāwi to the Jhelum is the country known as Chibhāl, the home of the Chibs. The Chibs are mostly Musalmān, but there are Hindu Chibs as well. Both trace their origin to a Rājput chief, named Jassu. Dharam Chand, a descendant of Jassu, was versed in medicine, and was summoned to Delhi to attend Jahāngīr. The fee in case of success was the emperor's daughter. Dharam Chand was successful; he married the Mughal princess, and was known henceforth as Shādi Khān. But he longed for his country and left his bride, and the next year the Mughals invaded his country and slew Shādi Khān.

The Chibs

The Hindu Chibs are descended from Shādi Khān by his Hindu wife, while the Muhammadan Chibs are the progeny of

his family subsequent to their acceptance of Islām. Both Hindu and Musalmān Chibs repair annually to the tomb of Shādi Khān at a place in the Kālī Dhar hills in the Naoshera *tahsīl.* Like the Dogrā Rājputs, the Chibs look upon service as the sole career for a man, but both Hindus and Musalmāns till the soil. They are a fighting people, and the spirit of adventure takes them out of their own country. They follow the caste rules of the Hindu Rājputs, but are perhaps stronger and more muscular than the Dogrās to the east. Besides the Chibs, there are Musalmān Rājputs to the west of the Chenāb—the Jarals, the Bhaos (unfavourably known in Akhnūr), the Gakhars, and many others. It should be noticed that the Hindu Chibs give their daughters in marriage to the ruling family of Jammu and Kashmīr.

The Bambās and Khakhās.

Drew, in his book *Jammu and Kashmīr Territories*, suggests that the Bambās and Khakhās of the Jhelum valley might be classed under the head Chibhāli. Very little is known as to when these people migrated into Muzaffarābād and Uri districts, or whence they came; but it is generally admitted that they had a foreign origin. It is probable that the Khakhās have occupied the country on the left bank of the Jhelum for 300 years or more, and that the Bambās, who live on the right bank of the river, came in yet earlier. The Khakhās, who enjoy the proud title of Rājā, are, like the Chibs, Musalmān Rājputs, and trace their descent to Rājā Mal Rāthor. They regard themselves as belonging to the Janjuah tribe. The Bambās, who are styled Sultāns, deprecate a Hindu origin. They claim to belong to the Kureshi tribe, and say that the name Bambā is a corruption of Bānī-Hāshim, and that they are descended from Alī, the son-in-law of Muhammad. The Khakhās and Bambās have a privileged status in the Jhelum valley, and their power has varied according to the weakness or strength of the central authority. Under the Afghāns, the Khakhās and Bambās paid little to their overlord, and were practically independent. The Sikhs tightened their hold over the Jhelum valley, but the Khakhās and Bambās retained certain privileges.

The Gūjars.

Numerically the Gūjars are of some importance, both in Jammu, where they number 151,700, and in Kashmīr, where they are returned at 125,650. Some of them have settled down to agriculture; but the great majority are herdsmen, and in the summer months move up to the splendid grazing-grounds above the forests with their buffaloes and goats. They are Musalmāns by religion, and many of the Gūjar tribes speak

a dialect of their own known as Parimu. They are a fine tall race of men, with rather stupid faces and large prominent teeth. They sacrifice every consideration for their buffaloes, and even in their cultivation, chiefly maize, their first thought is for these animals. They are ignorant, inoffensive, and simple, and their good faith is proverbial. Kashmīr and its mountains have especial attractions for the Gūjars; but as forest conservancy extends, these born enemies of the forest will find Kashmīr less attractive.

The Gaddis.

Another pastoral semi-nomad people are the Gaddis (5,927) of Kishtwār. They graze large flocks of sheep and goats, moving up the mountains as the summer draws on, and returning to the low country when the first snow falls. Their homes are in the high pastures, but they are for most part of the year roving, though in some places there are regular settled villages of Gaddis. They are Hindus. They wear duffel clothes and a very peculiar hat of stiff cloth. All speak well of the Gaddis, and they are a popular people, welcome everywhere.

Kashmīr proper.

In the Kashmīr province, out of a total population of 1,157,394, Muhammadans number 1,083,766, Hindus 60,682, and Sikhs 12,637. The Census, however, was taken in the winter, when many of the resident population were away working in the Punjab.

The Kashmīris.

The Kashmīri is unchanged, in spite of the splendid Mughal, the brutal Afghān, and the bully Sikh. Warriors and statesmen came and went; but there was no egress, and no wish on the part of the Kashmīris in normal times to leave their home. The outside world was far, and from all accounts inferior to the pleasant valley, and at each of the gates of the valley were soldiers who demanded fees. So the Kashmīris lived their self-centred life, conceited, clever, and conservative.

Islām came in on a strong wave, on which rode a fanatical king and a missionary saint, and history records that the Kashmīris became Musalmāns. But close observers of the country see that the so-called Musalmāns are still Hindus at heart. Their shrines are on the exact spots where the old Hindu *sthāns* stood, and these receive an attention which is not vouchsafed to the squalid mosques and the mean *mullās*. The Kashmīris do not flock to Mecca, and religious men from Arabia have spoken in strong terms of the apathy of these tepid Musalmāns. There are many shrines, shrines of the Rishis, the Bābas, and the Makhdūm Sāhib Pīrzādas, known as the Wāmi or 'national,' as distinguished from the Saiyids and Saiyid Pīrzādas who are foreigners. And as in religion,

so in social evolution, there has been little change up to recent times in the people of Kashmīr. Peculiarities noticed in the *Rājatarangini* still mark the national character. Witchcraft and sorcery are rampant now as they were in the times of the Hindu kings.

Shaikhs. The Musalmāns of Kashmīr may be divided into four divisions: Shaikhs, Saiyids, Mughals, and Pathāns. The Shaikhs, who are by far the most numerous, are the descendants of Hindus, but have retained none of the caste rules of their forefathers. They have clan names known as *krām*; but a man of the Tantre *krām* may marry a girl of the same *krām*, or a maiden of some other *krām*, provided she be one of the agricultural families. The only line drawn is that a man of the Shaikh *krām* may not marry a Saiyid girl, nor must he demean himself by an alliance with the daughter of a market-gardener or a menial. Some hold that the *krāms* known as Pandit, Kol, Bat, Aitu, Rishi, Mantu, and Ganai are descended from the Brāhmans, and that the Magres, Tantres, Dars, Dangars, Rainas, Rāthors, Thākurs, and Naiks are sprung from a Kshattriya origin. The Lon *krām* is assigned a Vaisya descent, and the Dāmars are connected with Sūdras. There may be some foundation for these theories; but the *krāms* are now mixed, and confusion is increasing owing to the fashion of the lower castes who arrogate the *krāms* of the respectable families. Thus the Dums, the gardeners, and the butchers have begun to call themselves Ganais, much to the annoyance of the true Ganais. And the boatmen, a most disreputable community, have appropriated the *krām* name of Dar. The social system is very plastic, and prosperity and a very little wealth soon obliterate a humble origin.

Saiyids. The Saiyids may be divided into those who follow the profession of religion and those who have taken to agriculture and other pursuits. In appearance, manners, and language there is nothing to distinguish them from other Kashmīri Musalmāns. Their *krām* name is Mīr. While a Saiyid retains his saintly profession Mīr is a prefix; if he has taken to agriculture, Mīr is an affix to his name. The Saiyid Makār fraternity are fraudulent *fakīrs* who pretend to be Saiyids and wander about Kashmīr and India, cheating the public. Many have now taken to trade. They intermarry among themselves.

Mughals. The Mughals are not numerous. Their *krām* names are Mīr (a corruption of Mirza), Beg, Bandi, Bach, and Ashaye.

Pathāns. The Pathāns are more numerous than the Mughals, and are found chiefly in the south-west of the valley, where Pathān

colonies have from time to time been founded. The most interesting of these colonies is that of the Kuki-Khel Afrīdis at Dranghaihama, who retain all the old customs and speak Pashtū. They wear a picturesque dress, and carry swords and shields. They pride themselves on their bravery, and in the absence of the nobler foe engage the bear on foot with the sword or spear him from their plucky little ponies. The Afrīdis and the Machipurias who belong to the Yūsufzai tribe are liable to military service, in return for which they hold certain villages free of revenue. The Pathāns chiefly came in under the Durrānis, but many were brought by Mahārājā Gulāb Singh for service on the frontier. They are rapidly adopting Kashmīri habits.

Beggars.

Several villages are held by *fakīrs* or professional beggars. They work as agriculturists in the summer, and beg in the winter. They are proud of their profession and are liked by the people. They intermarry with other beggar families or *Bechānwols*. These various tribes are scattered broadcast over the valley and possess no marked distinctive features.

Low castes.

The dividing line in society is between the *zamīndārs* or agricultural families and the *taifadārs*, that is, the market-gardeners, herdsmen, shepherds, boatmen, minstrels, leather-workers, and the menial servants of the villagers. No *zamīndār* would intermarry with a *taifadār*. For the most part it is difficult to trace any difference in physiognomy between the two classes, though there is often a difference in dress. But the Dum, the Galawān, and the Bātal or Wātal are easy to distinguish from other tribes. They have a darker skin, and the Dum has the restless, furtive eye so characteristic of the thief.

Dums.

The Dums are a very important people in Kashmīr, for they are the watchmen of the villages and formerly used to look after the State share of the crops. As a private citizen the Dum is not an admirable person, and he loses no opportunity of annoying the villagers, by whom he is feared and disliked. But as officials they are trustworthy, and have never been known to steal the State treasure which passes through their hands. The Dums claim descent from a Hindu king, who from fear of his numerous sons scattered them over the valley, but some say that they are descendants of the Chakks, mentioned under History.

Galawāns.

The Galawāns or horse-keepers are also credited with a descent from the Chakks, and their violent restless character may be hereditary. Originally they earned their living by

grazing ponies, but found it more lucrative to steal them. At last they became an established criminal tribe, and during Sikh rule were a terror to the country. Khaira Galawān, the hero of many a legend, was killed by the Sikh governor Mīān Singh. Gulāb Singh hunted down the tribe, and their end was transportation to Bunji.

Bātals. The Bātals or Wātals have been called the gipsies of Kashmīr, and are a peculiar people with a *patois* of their own. They may be divided into two classes. Those who abstain from eating carrion and are admitted to the mosque and to the Musalmān religion form the first class; those who eat the flesh of dead animals and are excluded from the mosque form the second. They are wanderers, and though they sometimes settle in wattled huts on the outskirts of a village, they soon move on. Their chief occupation is the manufacture of leather. The first class make boots and sandals; the second class make winnowing trays of leather and straw, and do scavenger's work. They also rear poultry and rob hen-roosts. Their women are of fine stature and handsome, and they often drift into the city, where they become singers and dancers. Once a year the Bātals from all parts of the valley flock to Lāla Bāb's shrine near the Dal Lake, and many matters affecting the tribe are then settled.

Bhānds. The Bhānds or minstrels are a peculiar people. They combine the profession of singing and acting with that of begging; and they travel great distances, often visiting the Punjab, where they perform to Kashmīri audiences. They are excellent actors, clever at improvisation and fearless as to its results. They are a very pleasant people, and their mirth and good humour form a pleasant contrast to the chronic gloom of the Kashmīri peasant.

Hānz. The Hānz or boatmen claim a Vaisya origin, and even now when blaming one of the crew for his bad paddling the captain will say: 'You are a Sūdra.' They always claim Noah as their ancestor; but some accounts point to a gipsy origin. The father of the family is an autocrat, and his discipline on board is often of a violent character. There are many sections of the tribe. First rank the half-amphibious paddlers of the Dal Lake (Demb Hānz), who are really vegetable gardeners, and the boatmen of the Wular Lake, who gather the *singhāra* nut (Gari Hānz). Next in status come the men of the large barges known as *bahats* and *wār*, in which cargoes of 800 maunds of grain or wood are carried. Then the Dunga Hānz, who paddle the passenger boats, not a respectable class, for

they prostitute their females; next the Gad Hānz, who net fish, and are said to surpass even the Dunga Hānz in their power of invective; and last the Hak Hānz, who collect drift-wood in the rivers. The Hānz or Hānjis are a hardy muscular people, but are quarrelsome and mendacious. Half the stories to the discredit of Kashmīr and its inhabitants are due to the fertile imagination of the Hānji, who after the manner of the Irish car-driver tells travellers quaint scandals of the valley and its rulers. The Hānji ashore is a great rascal, and European travellers would be wise to leave him in his boat. The chief *krām* names of the Hānjis are Dangar, Dar, and Mal.

The menial servants (Nāngār) of the villages are carpenters, blacksmiths, potters, weavers, butchers, washermen, barbers, tailors, bakers, goldsmiths, carriers, oil-pressers, dyers, milk-men, cotton-cleaners, and snuff-makers. Many of the Nāngārs have taken to agriculture, and most of them are extremely independent of their so-called masters. The only class of menials who apparently cannot take to agriculture are the weavers. Their soft hands and weak knees make field work an impossibility. Menials.

The Hindus are with few exceptions Brāhmans, and are commonly known as Pandits. They fall into three classes: astrologers (*Jyotishī*), priests (*Gurū* or *Bāchabatt*), writers and clerks (*Kārkun*). The priest class do not intermarry with the others, but the *Jyotishī* and *Kārkun* classes intermarry. Hindus. Brāhmans.

The astrologers are learned in the *shāstras* and expound them, and they draw up the calendars in which prophecies are made as to the events of the coming year. The priests perform the rites and ceremonies of the Hindu religion. But the vast majority of the Brāhmans belong to the *Kārkun* class. Formerly they obtained employment from the State, but recently they have taken to business, and some work as cooks, bakers, confectioners, and tailors. The only occupations forbidden to a Pandit are those of the cobbler, potter, corn-frier, porter, boatman, carpenter, mason, and fruit-seller. Many Pandits have taken to agriculture; but the city Brāhmans look down on any profession save that of writing, and they would never think of marrying a daughter to a Pandit cultivator. They have no real aptitude for business, or they might have found great openings in trade in Srīnagar under the new régime. They cling to the city, and if they obtain employment outside they leave their wives and families behind them. They are a handsome race of men, with fine well-cut features, small hands and feet, and graceful figures. Their women are

fair and good-looking, more refined than the Musalmāns. The children are extremely pretty.

The Pandits are broken up into numerous *gotras*; but though the Pandit repeats the name of his *gotra* seven times as he performs his ablutions, the outside world knows him only by his *krām*. Marriage within the *gotra* is forbidden, and the Kashmīri Pandits do not intermarry with the Brāhmans of India. Among the leading *krāms* may be mentioned the following: Tiku, Razdan, Kak, Munshi, Mathu, Kāchru Pandit, Sapru, Bhan, Zitshu, Raina, Dar, Fotadār, Madan, Thusu, Wangnu, Mujju, Hokhu, and Dulu. The descendants of the Brāhmans, said to be only eleven families, who survived the persecutions of Sikandar Shāh and remained in the valley, are known as Malmās. The others, descended from returned fugitives, are called Banamās.

Khattrīs. There are a few Khattrīs, known as Bohras in Srīnagar, engaged in trade and shop-keeping. They enjoy no caste fellowship with the Pandits, though in old days instances are known of a Khattrī being admitted to caste by the Brāhmans.

Sikhs. The Sikhs of Kashmīr were probably Punjābi Brāhmans who embraced Sikhism when the valley passed into the hands of Ranjīt Singh, but the Sikhs of Trahal declare that their ancestors came to Kashmīr in the time of the Afghān rule. They are not in a flourishing condition. They look to service as their chief means of livelihood, and are not good cultivators. They are ignorant and troublesome, and quarrel with the Musalmān Kashmīris and very often among themselves.

Christian missions. In 1901 the State contained 202 native Christians, but although converts are so few, important work has been done by various missions. Chief among these is the Church Missionary Society at SRĪNAGAR, established in 1865, which maintains an excellent hospital. Owing to its example, the first State dispensary and school were opened. Other missions have been founded by the Moravians and the Roman Catholics at Leh.

Pastimes. The beautiful turf and green swards of Kashmīr are so suggestive of splendid playgrounds that one naturally expects to find some national game in the valley, and the legendary feast of roses conjures up a vision of a happy laughing people who were skilled in the battles of flowers long before modern Europe dreamed of such carnivals. But in reality there is no game and no pastime in Kashmīr proper. Baltistān, Gilgit, and Astor are the homes of polo, and Ladākh has its devil-dance; but Kashmīr has nothing distinctive save its actors, the

Bhānds or Bhagats, already referred to. Sometimes we find in the villages a wandering minstrel (Shair), who sings to the accompaniment of a guitar, or recites verses, often extempore, full of local allusions and usually full of flattery, if an official or person of influence be present. Like most Orientals, the Kashmīris regard amusement as passive rather than active. They are glad to look on at a race or a game, but it is extremely difficult to induce them, athletic and powerful as they are, to take a part in any sport. They are not altogether to blame. In former days pastime was at a discount, and small mercy would have been shown to the serf who suggested that life should not be all labour. Even in the pampered city of Srīnagar the effervescence of youth was checked by Gulāb Singh, who sternly repressed the old ward fights with slings and stones. The professional *shikāris* are often keen sportsmen; and the boatmen of Kashmīr will, when challenged, paddle till they drop rather than be beaten by a rival crew.

Agriculture. Jammu.

As already explained, the Jammu province consists of a fringe of level land bordering on the Punjab Districts of Jhelum, Siālkot, and Gurdāspur, gradually rising by a succession of ranges of hills to the high uplands bounded by the mountains of the Himālayan range, across which lie Kashmīr, Baltistān, and Ladākh. The variations of climate are great, and the staples cultivated naturally vary to some extent with the climate. Thus the lower tracts yield all the usual crops of the Punjab, while in the higher tracts saffron, buckwheat, and mountain barley are grown. In the warmer parts the mango and *shīsham* are found in large quantities; but these give place to apple and pear-trees, to the picturesque *deodār* and shady Oriental plane (*chinār*) in the colder parts.

Plains and lower hills.

The province may be roughly divided into three main divisions. The plains and *kandi* hills consist of the *tahsīls* of Kathua, Jasmirgarh, Samba, Ranbīrsinghpura, Jammu, Akhnūr, Manawar, and Mīrpur. In the hot moist tracts, such as those irrigated from the Rāvi and Ujh in the Jasrota district to the south-west, sickness is so rampant that the resident population is too small for the cultivation of the soil, which is chiefly tilled by *udarach* cultivators, men from the low hills who descend to the plain for short periods to sow, tend, and reap crops, and return again to their healthier homes.

North of this lie the thirsty lowlands, sheltered by the hills from the cooler inland breezes, seamed with many channels (*kadhs*), which carry off the drainage of the uplands and become

roaring torrents for a few hours after heavy rainfall, but at other times are broad stretches of burning sand. This tract depends for a full crop on timely and well-distributed rainfall.

The parched *kandi* hills are composed of a red loam, thickly strewn with round stones and covered with stunted growth of *garna sanatan* and *bahaikar* bushes, broad-leaved species of trees, acacias, and in parts bamboos. The *tor* (*Euphorbia*) is used to hedge the fields and cobble-paved paths, and to keep the *nīlgai* from damaging the crops. The soil is thirsty and dries quickly, as the land slopes and drainage is rapid. Frequent rainfall is necessary to ripen the crops, chiefly wheat, barley, and *sarshaf* (rape) in the spring, and millet and maize (on manured land) in the autumn; but rain washes away the soft earth and leaves the surface of the soil a mass of stones.

Where the *kandi* hills end, and before the first limestone ridge is crossed, there is a narrow belt of cool land lying in the valleys traversed by the clear streams which carry the drainage of the middle hills on the lower side. When the depth of soil is sufficient, excellent crops are raised and much of the land is irrigated; but on the slopes where the depth of earth is small, and the limestone crops up to the surface (*prāt*), cultivation is precarious. Too much rain causes the soil to become water-logged, as percolation is stopped by the rock bed; and during a continued spell of hot weather the rock surface becomes so heated as to burn the roots of the crops, which wither.

Irrigation. In this portion of the province wells are few, owing to their cost. Except in the lowland bordering on the streams deep boring is necessary, and it is common to find that the water is from 70 to 100 feet below the surface. The cultivators are not as a rule sufficiently well-to-do to undertake the expenditure necessary to sink such wells, and risk the failure of finding water. Since the introduction of the regular settlement, the Darbār has done much to encourage the sinking of wells by the grant of advances on easy terms.

In this tract, however, are found the only considerable areas protected by irrigation. The natural difficulties to be overcome are great, as the lie of the land makes projects costly and difficult to execute. The lines of irrigation have to cross the drainage of the country, and it is not easy to secure the channels against damage from the *kadhs* when in flood. Owing to this difficulty, the more ambitious projects of former days—the Kashmīr canal taking off from the Rāvi above the

Mādhopur weir, the Shāhi Nahr taking off from the left bank of the Chenāb opposite Akhnūr, and the Katobandi or Dalpat Nahr taking off from the Chenāb on the right bank—failed to render permanent help to the country. Something has recently been done to remedy the apathy displayed in the past. Two old irrigation works taking off from the Tāwi in the Jammu *tahsīl*—the Jogi Darwāza canal irrigating the land immediately below Jammu city, and the Satwari canal irrigating the villages round Satwari cantonment—have been realigned and put in order; and the Dalpat canal, taking off from the right bank of the Chenāb and irrigating a large portion of the Akhnūr *tahsīl* lying immediately north of the Bhajwath Andar, has been reconstructed.

Under agreement with the Government of the Punjab the right of the State to take water from the Rāvi, above the Mādhopur weir, for the irrigation of spring crops in the Kathua *tahsīl* has been surrendered in consideration of an annual payment of Rs. 5,000. The restoration of the old Kashmīr canal, which takes off above the weir, is thus not financially attractive. Probably the low-lying portion of the Mīrpur *tahsīl*, known as the Khari Ilāka, could be irrigated from the Jhelum; but this source of irrigation has not been tapped.

Hindrances to cultivation.

There are many drawbacks to agriculture. The administration in the past was bad and shortsighted. There are practically no roads, and in the *kandi* tract even drinking-water is obtained with difficulty. Much damage is done by *nīlgai*, hog, and monkeys, the first-named animal, though an antelope, being regarded as sacred like the cow. Cattle turned loose, either as likely to die and of no further use, or devoted to the deity, have become quite wild and do much damage to crops.

Intermediate band.

Above the first limestone range lies a country of wide valleys and high hills, consisting of Basoli, Rāmnagar, Udhampur, Naoshera, and part of Riāsi. This has a more temperate climate than the tract just described. The supply of water by perennial streams is constant, but the stream beds are deep and irrigation is not easily effected. Being nearer the Himālayan range, rainfall is usually heavy and fairly constant, so that the people do not trouble themselves much about irrigation, except where this can be contrived at little expense. The crops are much the same as in the plains, but *bājra* gives way to maize, and sugar-cane and turmeric disappear. The seasons are shorter. The areas of *prāti* land, where the limestone bed penetrates or approaches the surface of the soil, are con-

siderable. Communications are backward and prices generally rule low. Trade is carried on by Telis, who keep droves of pack-bullocks or ponies. Grazing is good and the tract is frequented by Gūjars, goatherds, and shepherds. A considerable export of *ghī* takes place. Wild hog and monkeys do damage, but no antelope are found. Autumnal fevers are very rare.

Uplands. The higher uplands, including Bhadrāwar, Kishtwār, Rāmbān, part of Riāsi, and Rāmpur Rājaori, have a really cold climate, and in the winter snow falls. The cultivators are a different class from those in the plains and lower hills, and Kashmīri settlers are found. Here the mango-tree gives place to the apple; and the pear, the Oriental plane (*chinār*), and the *deodār* are found. The climate approximates to that of the valley of Kashmīr, and cultivation is on much the same lines. The specialities are saffron in Kishtwār, and poppy in Dodār, Kishtwār, and Bhadrāwar. This tract is healthy, and only in the more shut-in valleys do fevers trouble the people. Irrigation is general and the rainfall heavy. Grazing lands are plentiful and Gūjars numerous. Early snowfall and cold winds from the mountains affect the crops in the parts adjoining the Himālayan range, and prevent these coming to maturity in certain years. Bears, hog, and monkeys do some damage.

Kashmīr proper. Owing to its system of rivers, Kashmīr proper possesses a large area of alluvial soil, which may be divided into two classes: the new alluvial, found in the bays and deltas of the mountain rivers; and the old alluvial, lying above the banks of the Jhelum and extending as far as the *karewa*. The first is of great fertility, and every year is renewed and enriched by silt from the mountain streams. Up to the present, in spite of the lax system of forest conservancy, the silt of the mountain streams is rich and of dark colour; but the Sind river brings down an increasing amount of sandy deposit, which is partly due to the reckless felling of trees in its valley.

Soils. The Kashmīris, so far, have considered no crop worthy of attention save rice; by irrigation and manuring an artificial mould has been obtained for the rice-fields, and it is rare to hear anything said about the original soil. But they recognize four classes which require peculiar treatment when under rice-cultivation. These are known as *grūtū*, *bahil*, *sekil*, and *dazanlad*. *Grūtū* soil contains a large proportion of clay. It holds water, and in years of scanty rainfall is the safest land for rice. But if the rains be heavy, the soil cakes and the out-turn of rice is poor. *Bahil* is a rich loam of great natural

strength; and there is always a danger that by over-manuring the soil will be too strong, and that the plant will run to blade. *Sekil* is a light loam with a sandy subsoil; and if there be sufficient irrigation and good rains, the out-turn of rice is always large. *Dazanlad* soil is chiefly found in low-lying ground near the swamps, but it sometimes occurs in the higher villages. Special precautions are taken to run off irrigation water when the rice plant shows signs of a too rapid growth; and if these are taken in time, the out-turn in *dazanlad* land is sometimes very heavy. A peculiarity of this soil is that the irrigation water turns red in colour. Near the banks of the Jhelum, and in the vicinity of the Wular Lake, is found a rich, peaty soil (*nambal*), which in years of fair rainfall yields enormous crops of rapeseed and maize. This will not produce rice and requires no manure. It is, however, the custom to burn standing weeds and the stubble of the last year's crop before ploughing.

The curious plateaux known as *karewa*, which form so striking a feature in the scenery, are for the most part of *grūtū* soil, with varieties distinguished by colour. The most fertile is the dark blackish soil known as *surhzamīn*, the red *grūtū* is the next best, while yellow soil is considered the worst of all. Other classes are recognized, and there are many local names.

Manures. The Kashmīris are fortunate in posssessing ample manure for their fields, and are not compelled, like the natives of India, to use the greater part of the cattle-dung for fuel. The rule is that all dung, whether of sheep, cattle, or horses dropped in the winter, when the animals are in the houses, is reserved for agriculture, while the summer dung is dried, and after being mixed with *chinār* leaves and willow twigs is kept for fuel. But the ashes are carefully stored and the fires are chiefly fed with wood, the dung aiding and regulating combustion. The dung-heaps which one sees in early spring show that the Kashmīri wastes nothing that is useful in agriculture; but he has other resources. When the flocks commence to move towards the mountains, the sheep are folded on the fields, and the Kashmīri considers turf clods to be a far more effectual renovator of rice-fields than farmyard manure. These are cut from the sides of watercourses and are rich in silt; and a dressing of clods will strengthen a field for three years, whereas farmyard manure must be applied every year. The strongest farmyard manure is that of poultry, and this is reserved for onions. The next best is the manure of sheep, which is always kept for the rice nurseries. Next comes cattle-dung, and last of all horse-dung. The value of night-soil is thoroughly under-

stood. Near Srīnagar and the larger villages the garden cultivation is excellent, and the only manure used is poudrette, or night-soil mixed with the dust of the city alleys and pulverized by the action of the sun.

Irrigation. Agriculture in the valley practically depends on irrigation. Thanks to the formation of the country, this is easy and in ordinary years abundant. If normal snows fall in the winter and the great mountains are well covered, the water-supply for the rice will be sufficient. The snows melt into various mountain streams, which rush down to the Jhelum. From both sides of the river the country rises to the mountains in bold terraces, and the water passes quickly from one village to another in years of good snowfall. At convenient points on the mountain streams temporary weirs or projecting spurs are constructed; and the water is taken off in main channels, which pass into a network of small ducts and eventually empty themselves into the Jhelum, or into the large swamps which lie along its banks. Lower down, where the streams flow gently, dams are erected. All villages which depend for their irrigation on a certain weir are obliged to assist in its construction and repair. The weir consists of wooden stakes and stones, with grasses and willow branches twisted in between the stakes, the best grass for this purpose being the *fikal*. The channel often has to be taken over ravines and around the edges of the *karewa* cliffs, and irrigation then becomes very difficult. In former days, when the State took a share of the crop, it was to the interest of the Darbār to look after irrigation and to assist in repairs. But since 1880, when an attempt was made to introduce a fixed assessment, the villagers have had to attend to repairs themselves, and where the channel passes through difficult ground the irrigation has become very uncertain. If a ravine has to be crossed, a flat-bottomed boat, similar to those in ordinary use, is erected on high trestles, and the water flows over in a quaint-looking aqueduct. When a *karewa* has to be passed or skirted, a tunnel will sometimes be made; but as a rule the channel is cut along the face of the cliff, and great loss is caused by the frequent breaches. In old days over every main channel there was a *mīrāb*—one of the villagers—whose duty was to see to repairs and to call out labour. The *mīrābs* had not received pay for years, and the channels had fallen into great disorder; but the office has now been revived. The system of distribution is rough and simple; but it has the advantage that quarrels between villages rarely arise, and disputes between cultivators of the same village are

unknown. Besides the irrigation derived from the mountain streams, an important auxiliary supply is obtained from numerous springs. Some of these afford excellent irrigation, but they have two drawbacks. Spring water is always cold, and it does not carry with it the fertilizing silt brought down by the mountain streams, but bears a scum which is considered bad for rice. The Jhelum in its long, gentle course through the valley gives no irrigation at present, but as the population increases water will probably be lifted by the Persian wheel. The only lift-irrigation at present takes the form of the simple and inexpensive pot and lever (*dhenklī*), and in Srīnagar and the small towns some splendid garden cultivation depends wholly on this system. On some of the *karewas* the spring-level is not very deep; and when all the land commanded by flow-irrigation has been taken up, it is hoped that wells may be sunk. The bucket and rope will be found more suitable than the Persian wheel, as the spring-level is more than 18 feet in depth. In the north-west of the valley there are a few tanks, and tank-irrigation might be introduced into many parts.

Implements. The agricultural implements are few and simple. The plough is of necessity light, as the cattle are small, and is made of various woods, the mulberry, the ash, and the apple being perhaps the most suitable materials. The ploughshare is tipped with iron. For clod-breaking a wooden mallet is used and the work is done in gangs. Sometimes a log of wood is drawn over the furrows by bullocks, the driver standing on the log. But as a rule, frost, snow, water, and the process known as *khushāba* are considered a sufficient agency for the disintegration of clods. The spade is made of wood, has a narrow face, and is tipped with iron. It is chiefly employed by the cultivator for digging out turf clods and for arranging his fields for irrigation. For maize and cotton, a small hand hoe is used to extract weeds and to loosen the soil. The pestle and mortar for husking rice and pounding maize must also be mentioned. The mortar is made of a hollowed-out bole of wood. The pestle is of light, hard wood, and the best and hardest of woods for the purpose is the hawthorn.

Agricultural operations. Agricultural operations are carefully timed so as to fall within a certain period before or after the *nauroz*, the spring day of the Musalmāns, and the *mezan*, or commencement of autumn. If the period is exceeded there will be a certain failure in the crop, which is calculated in a most precise manner. The circumstance which interferes with punctuality in ploughing and sowing is the absence of irrigation water at the right time; and

in the spring there is great excitement among the villages if water is stopped by some natural cause, such as the late melting of snow, or by other causes, such as the greediness of some privileged person who defies the local official and takes more than his just share of water. Up to recent times, the cultivator was often seized for forced labour and could not plough or sow at the proper time. And though there is no doubt that rice ought to be sown within forty days after the *nauroz*, sowing often continues up to the middle of June.

In March the rice-fields, which have remained undisturbed since the last rice crop was cut, are hard and stiff. The soil has perhaps been worked by the frosts and snow; but if, as is sometimes the case, no snow has fallen, it will be difficult work for the plough-bullocks, thin and poor after the long winter, to break up the soil. If rain does not fall, a special watering must be given and ploughing then commences. In certain villages the soil is so damp that ploughing has to be done perforce while the soil is wet, and the out-turn is always poorer than from fields where the soil is ploughed in a dry condition. All the litter of the village and the farmyard manure is carried out to the fields by women and ploughed in, or is heaped in a place through which the irrigation duct passes and so reaches the fields as liquid manure. Sometimes manure is placed in heaps on the fields, and when the field is covered with water it is scattered about by hand. Later on in April, as the weather opens, turf clods are cut from the banks of streams and irrigation channels, and flung broadcast over the wet fields. When four ploughings have been given and the clods have been crumbled with mallets, the soil is watered and sowing can commence in April. The rice seed, which has been carefully selected at threshing-time and has been stored away in grass bags, is again examined and tested by winnowing. It is then put back into the grass bags and immersed in water until germination commences. Sometimes the seed is placed in earthen vessels through which water is passed. Rice is grown up to an altitude of 7,000 feet; and in the higher villages it is convenient to sow earlier than in the lower villages, as the cold season comes on quicker and it is essential to harvest the crop before snow falls. In certain lower villages also, where it is the custom to sow rice earlier than ordinary, the out-turn is always heavy. The ploughing for maize and the autumn millets is not so careful as for rice, and two or three ploughings are considered ample. A watering is sometimes given to maize-fields to start the seed, but no manure is put in.

Cotton alone receives manure in the form of ashes mixed with the seed. All Kashmīris recognize that the greater the number of ploughings the greater will be the out-turn of the crop, but holdings are large and the cattle are small and weak.

In June and July barley and wheat are cut and threshed. The ears are trodden out by cattle or sometimes beaten by sticks, and when there is no wind a blanket is flapped to winnow the grain. Anything is good enough for the spring crops, which are regarded by the Kashmīris as a kind of lottery in which they generally lose their stakes. At the same time comes the real labour of rice weeding, the *khushāba*, a word for which there is no English equivalent. It involves putting the rice plants in their right places, and pressing the soft mud gently around the green seedling. No novice can do the work, as only an expert can detect the counterfeit grasses which pretend to be rice, and *khushāba* must be learnt young. The operation is best performed by hand, but it may be done by the feet (*lat*), or, in a fashion, by cattle splashing up and down the wet fields of mud (*gupan nind*). Sometimes when the rice is two feet high the whole crop is ploughed up (*sele*). When rice has bloomed and the grain has begun to form, the water is run off the fields, and a short time before harvest a final watering is given which swells the ears. Often, while the rice is standing, rapeseed is cast into the water. No ploughing is given, and a crop of rape is thus easily obtained. Before the harvest of the autumn crops commences, about the first half of September, rain may fall and it is very beneficial. It improves the rice crop, and it also enables the cultivator to plough and sow for the spring crops. Such rain is known as *kambar ka*, and there is great rejoicing when these timely rains occur. Before September, if rain has fallen, a large area of land will be ploughed up and sown with rapeseed; and both this and the early sowings for barley and wheat are of importance, as they come at a time when the cultivator and his cattle have some leisure, for then the *khushāba* is over and harvest has not commenced. There are no carts in the valley, save in the flat plain around the Wular Lake, where a primitive trolly is used; and as the Kashmīris will not use plough-bullocks for carriage, the sheaves of rice and of other crops are slowly and laboriously carried by men to the threshing-floor. When the ricks are thoroughly dry, threshing commences. Seizing a bundle of rice plants in his two hands, the cultivator beats them over a log of wood and detaches the ears from the stalk. The straw is care-

fully stored, as it is considered the best fodder and the best thatching straw of all.

When the weather is favourable, from October to December, the cultivator is busy ploughing 'dry' land for wheat and barley; but by the end of December ploughing must cease, and the Kashmīris occupy themselves with threshing and husking the rice and other crops and with domestic work, such as the tending of sheep and cattle and the weaving of blankets. It is difficult in mid-winter to tempt a Kashmīri out of his reeking house. The ploughings for wheat and barley are very few and very slovenly. For wheat three at the most, for barley two are considered sufficient. No labour is spent in weeding or manuring, and the standing crops of wheat and barley would shock a Punjābi farmer. The fields are choked with weeds, and it is wonderful that there should be any crops at all. Two years of barley or wheat would ruin any land, and the Kashmīris have the sense to follow a spring crop by an autumn crop. Some day more attention may be paid to their barley and wheat, but two facts prevent either of these crops being largely produced in the valley. The rainfall is scanty and very uncertain, and if irrigation were attempted the water in the springtime would prove too cold for plant growth.

Principal crops.

The principal crops are rice, maize, cotton, saffron, tobacco, hops, millets, amaranth, buckwheat, pulses, and sesamum in the autumn; and wheat, barley, poppy, rape, flax, peas, and beans in the spring.

Rice.

The most important staple is rice, and the cultivator devotes all his energy to this crop. The soil is porous, and water must be kept running over the fields from sowing time almost to harvest; for if once the land becomes hard and caked, the stalks are pinched and the plant suffers, while the work of *khushāba* is rendered impossible. It is dangerous to leave the fields dry for more than seven days, and the cultivator should always be present to watch the water. The growth of weeds is very rapid; and once they get ahead of the rice, it is extremely difficult to repair the injury caused and to eradicate the grasses, which none but an expert can distinguish from the rice. There are two systems of cultivation. Under the first the rice is sown broadcast; under the second it is first sown in a nursery and then planted out. The broadcast system gives the best out-turn per acre, but the labour entailed is far heavier than that required in the nursery system. Two *khushābas* are sufficient for the latter, while four *khushābas* are essential in broadcast sowings. Provided the soil is good and irrigation is

fairly abundant, the cultivator will choose the broadcast system, but in certain circumstances he will adopt the nursery method. If water comes late, rice can be kept alive in the nursery plots, and the young seedling need not be planted out till forty days after sowing.

Just as there are two methods of sowing the rice, so there are two methods of preparing the soil. The one is known as *tao*, the other as *kenalu*. An old proverb says that for rice cultivation the land should be absolutely wet or absolutely dry. In *tao* cultivation the soil is ploughed dry; and when the clods are perfectly free from moisture and do not lose weight when placed over the fireplace at night, irrigation is given and seed is sown. In *kenalu* cultivation the soil is ploughed wet; and when three ploughings are made and the soil is half water and half mud, the out-turn of *kenalu* is sometimes equal to that of *tao*. But as a rule the *tao* system gives the better results and *kenalu* involves the heavier labour.

The rices are infinite in variety. In one *tahsīl* fifty-three varieties have been counted. They may be roughly divided into two classes, the white and the red. As a food the white rice is the more esteemed, and the best of the white rices are the *bāsmati* and the *kanyun*. These germinate very quickly and ripen more rapidly than any other. But they are very delicate plants and cannot stand exposure to cold winds. They give a small crop and require very careful husking. The white rice, though esteemed as a food, is from a cultivator's point of view less popular than the red rice, which is more hardy, gives a larger out-turn, can be grown at higher elevations, and is less liable to damage from wild animals.

For a good rice harvest the following conditions are necessary: heavy snows on the mountains in the winter to fill the streams in the summer; good rains in March and the beginning of April; clear, bright, warm days and cool nights in May, June, July, and August, with an occasional shower and fine cold weather in September. All Kashmīris assert that *sirdāna*, or full grains, depend on cold dew penetrating the outer husk and swelling and hardening the forming grain.

Next in importance comes maize. The best soil is Maize. reclaimed swamp, and enormous crops are raised in good years from the black peaty land which lies under the banks of the Jhelum. In the high villages occupied by the Gūjar graziers very fine crops of maize are grown, and the out-turn is due to the heavy manuring given to the field by buffaloes and cattle. But with this exception maize receives no manure,

and the system of harvesting renders it unnecessary. A large part of the stalk is left on the fields, and in the winter the stalks rot with the snow and rain into the soil. Ordinarily two to three ploughings are given, and a final ploughing covers over the seeds. A month after sowing, when the maize is about a foot high, women weed the fields with a small hand-hoe and loosen the soil about the roots. As a rule, maize is grown on 'dry' land, and it is rare to find it irrigated. For a really good crop of maize fortnightly rains are required, but in the swamp-lands the natural moisture of the soil produces fair crops even if the rains are delayed.

Kangni. *Kangni* or *shol* (*Setaria italica*) is an extremely useful plant; and when it is apparent from the look of the mountains that snow water will be scarce, a large area of rice land is at once sown with it. The land, if a good crop is hoped for, must be carefully ploughed about four times, and the seed is sown in April and May about the same time as rice. Some weeding is done, but as a rule the crop is left until it ripens in September. *Chīna* or *ping* (*Panicum miliaceum*) is very like rice in appearance, but is grown on 'dry' land. The field is ploughed three times, and after sowing cattle are turned on to the land and tread the soil down. The seed is sown in June, and the crop is harvested in September. It is occasionally weeded; but like *kangni*, with which it is always associated as a cheap food-stuff, *chīna* does not receive much attention.

Amaranth. The most beautiful of all the crops is the *ganhar*, or amaranth, with its gold, coral, and crimson stalks and flowers. It is frequently sown in rows among the cotton-fields or on the borders of maize plots, and the sulphur blooms of the cotton and the coral of the *ganhar* form a delightful combination of colour. *Ganhar* is sown in May after two or three ploughings. No manure or irrigation is given, and with timely rains a large out-turn is harvested in September. The minute grain is first parched, then ground and eaten with milk or water. It is considered a heating food by the people, and Hindus eat it on their fast-days. The stalks are used by washermen, who extract an alkaline substance from the burnt ashes.

Buck-wheat. *Trumba*, or buckwheat (*Fagopyrum esculentum*), is a most useful plant, as it can be sown late in almost any soil, and when the cultivator sees no hope of water coming to his rice-fields he will at once sow the sweet *trumba*. There are two varieties. The sweet *trumba*, which has white, pinkish flowers, is often grown as a substitute for rice when water is not forth-coming; it can be sown up to the middle of July, and with

good rains it gives a fair crop. The bitter *trumba*, which has yellow flowers, is not a mere makeshift, but in the higher villages often forms the only food-grain of the people. The unhusked grain is black in colour, and is either ground in mills and made into bread or is eaten as porridge. The sweet *trumba* is said to be a good food for horses and for poultry.

Pulses are not considered of much importance by the people, and Punjābis do not regard the Kashmīr *dāl* in a favourable light. Gram is unknown, and the best pulse is *mūng* (*Phaseolus Mungo*). The land is ploughed three times and the seed is sown in May. No irrigation is given, and *mūng* is often sown in rice lands which require a rest. The roots run deep and air the soil. The other pulses are *mah* (*Phaseolus radiatus*) and *mothi* (*P. aconitifolius*). Pulses.

The oilseeds of Kashmīr are of some importance, and now that Kashmīr is linked with the outer world they are assuming a greater value as a trade staple. The Kashmīris do not use *ghī* (clarified butter) in their food, but they require vegetable oils; and at present they use these for lighting as well as for cooking, owing to the expense of mineral oil. Oilseeds.

The chief oilseed is rape, of which there are three varieties. The first is *tilgoglu*, which is sown in September and October on dry lands, and especially on the soft reclaimed swamp land. As a rule there is no weeding, except where the wild hemp is very vigorous. Timely rains from February to May are required, and the crop is harvested in May and June. The second variety is known as *taruz* or *sarshaf*, and is sown in the spring. It ripens at the same time as the *tilgoglu*, but gives a smaller amount of oil from its seed. Three maunds of seed to the acre would be an average yield for *tilgoglu*. The other varieties of rape give less. The third kind is known as *sandiji*, and is sown in the standing rice when the last watering is being given. It yields a small crop, but as no labour is expended the cultivator counts even the small crop as gain. Rape.

Linseed is cultivated all over the valley, but the best fields are on the lower slopes of the mountains. The land is ploughed twice, and a third ploughing is given when the seed is sown in April. The crop is harvested towards the end of July. Timely rains are required in May or the plant withers. The crop is said to exhaust the land. An average yield would be $1\frac{1}{2}$ to 2 maunds of linseed to an acre, but with proper cultivation the produce could be increased. No manure is given and the fields are not weeded, and as a rule the linseed crop has a very dirty and slovenly appearance. As one ascends the Linseed.

slopes of the mountains the plant has a longer stem, and some time ago a fitful attempt was made to grow flax for fibre. Like other excellent schemes for introducing new staples and industries into Kashmīr, the experiment failed as there was no one to supervise or encourage the cultivators.

Sesamum. *Til* (*Sesamum indicum*), which is a very common crop, is sown in April. The land is ploughed four times, and a fifth ploughing is given at sowing. No manure is applied, but *til* requires a rich soil, and gentle and timely rains. The crop is weeded with the hand hoe, and is more carefully looked after than any of the other oilseed plants. The plant is very delicate and is injured by cold winds. The crops ripen shortly after rice, and blankets are spread under the plants at harvest-time to catch the seeds, which fall out of the pods with the slightest movement. In Kashmīr the oil, which is sweet, is valued as an ointment. An average yield would be about 1½ maunds of seed per acre.

Oil. This will be a convenient place to give a brief description of oil production. Formerly oil was taken by the State in payment of revenue; but this practice has now ceased, and the cultivator either sells his oilseeds to Punjābi traders or expresses oil for his own consumption or for sale. There are Telis or professional oil-pressers all over the valley; and they charge for their services a small amount of oil and keep the whole of the oil-cake, which they sell to the villagers for cattle-food. The press is made of plane-wood, and is worked by a single bullock, blindfolded, the driver sitting perched up at a great height on the beam which crushes the seed and is carried backwards. The press is fed with seed by a man who stands below. The Kashmīris say that rapeseed gives the best oil for lighting purposes, and linseed for eating; but as a matter of fact one never gets a pure oil from the press, as the various seeds are mixed by the oil-presser, and the kernels of the walnut and apricot are added. The natives give as a reason for mixing the various seeds, that a much larger amount of oil is obtained by crushing together various sizes and kinds of seed than could be obtained from crushing each separately. The walnut is an important oil-producer, but this and the apricot are not considered to give good oils for lighting. Walnut oil is said to clog, and does not give half the burning power of other oil.

Cotton. Cotton is grown all over Kashmīr up to a certain elevation; and, as a rule, where the white rices cease to be cultivated owing to the coldness of the air, there too the cotton plant

disappears. It is cultivated on the *karewas*, and also in low-lying land which is irrigable but requires a rest from rice. The soil should be ploughed frequently, and never less than three ploughings are given, after which the clods are well pulverized by mallets. The seed is soaked in water and mixed with ashes before sowing, but the plant receives no manure. Sowing takes place at the end of April and in May, and the fields are often watered at sowing time.

Spring crops. Barley.

Wheat and barley are the two spring crops of the valley, and of these the barley crop is the more important, if area alone be considered. The barley commonly grown in the valley is not of a good quality, and no pains are taken in its cultivation. One ploughing is given, and when the seed is sown from October to December the land is again ploughed. The fields are not weeded nor manured, and probably have not their match in the world for bad and slovenly cultivation. It is sometimes difficult to distinguish the barley in the mass of *chirman* weed (*Ranunculus sp.*). The grain is not esteemed as a food, but is very often mixed by millers with wheat. In the higher villages, at an elevation of 7,000 feet, there is a peculiar kind of barley known as *grim*, or Tibetan barley, which is an important food-staple among the mountain people. The villagers always speak of it as bastard wheat. The grain has not the chaff scales adhering to it, but is naked like wheat. The people say that, if this is grown at a lower altitude, it reverts to the type of ordinary barley. It is sown in May and June, and ripens in August and September.

Tibetan barley.

Wheat.

Wheat receives better treatment than barley, but two ploughings, with a third at seed-time, are considered sufficient. The land is neither manured nor weeded, and as a rule no irrigation is given. Seed is sown in September and October, and the crop ripens in June. The common variety is a red wheat with a small hard grain, and Punjābis consider the flour to be very inferior. Just as the grain of barley, and to a certain extent the grain of wheat, are looked down upon as a food by the rice-eating Kashmīri, so too the valuable straw of these cereals is neglected as a cattle-food, and it is common to see large ricks of wheat-straw left to rot on the land. On the other hand, rice-straw, which is not used for fodder until all else fails in Northern India, is the most popular fodder in Kashmīr. It may be that the high elevation renders the rice-straw less flinty and more succulent here than in India.

Saffron.

The saffron (*Crocus sativus*) of Kashmīr is famous for its bouquet, and is in great request as a condiment and as a

pigment for the sect-marks of Hindus. Various substitutes, such as turmeric, are now used for the latter purpose by Kashmīri Pandits; but if a man can afford it he will use the bright saffron colour, mixed with red lead and pounded with a piece of *deodār*-wood. The cultivation is peculiar, and the legend about its introduction shows at any rate that it is an ancient industry.

At present cultivation is extending as fast as the local method of seed-production will allow. But that this method is slow may be inferred from the fact that, at measurement of a total area of 4,527 acres of saffron land, only 132 acres were actually cultivated with the crocus. In former days[1] the saffron cultivation was a large source of revenue to the State; but in the famine the people in their distress ate up the bulbs, and although seed has been imported from Kishtwār, and every year land is set apart for the production of seed, the process of reproduction is slow. For seed purposes a particular aspect and sloping ground is required, and it takes three years before the bulbs can be planted out in the small square plots where the saffron is to be grown. These plots must remain fallow for eight years, and no manure can be applied to them and no assistance given in the way of water. When once the bulb has been placed in the square it will live for fourteen years without any help from the cultivator, new bulbs being produced and the old ones rotting away. The time for planting out is in July and August; and all that the cultivator has to do is to break up the surface gently a few times, and to ensure the proper drainage of the plot by digging a neat trench on all four sides. The flowers appear about the middle of October; and the purple blooms and the delicious though somewhat overpowering scent of the saffron turn the dry, uninviting plateau above Pāmpur into a rare and wonderful garden. Saffron is at present limited to the *karewas* in the neighbourhood of Pāmpur, but there is no peculiar property in the soil there which does not exist in other *karewas*, though it is of exceptionally good quality.

In former days men came from all parts to cultivate saffron on the Pāmpur *kārewas*; but now, with the exception of a few people from Srīnagar, the industry is in the hands of local cultivators. At harvest-time the whole flower is picked and put into bags and then taken to the farmer, who takes one bag

[1] 'There are 10,000 or 20,000 *bīghas* of land covered with saffron, which afford a prospect that would enchant those who are most difficult to please.' —*Ain i-Akbarī*.

for himself and gives the other bag to the cultivator. The bags are never opened, and it has been found by experience that the cultivator never attempts to foist a bad bag on the farmer. When the flowers have been collected the real work of extracting saffron commences. The flowers are dried in the sun, and the three long stigmas are picked out by the hand. The stigma has an orange-red tip, and this tip forms the *shāhi zafarān*, the first quality saffron. The long white base of the stigma also makes saffron, but it is of inferior quality to the tips. The article thus collected in a dry condition is known to the trade as *mongla*, and sells for one rupee per *tola*. When the *mongla* saffron has been extracted, the sun-dried flowers are beaten lightly with sticks and winnowed. Then the whole mass is thrown into water, when the petals swim and the essential parts of the flower sink. The parts which have sunk (*niwal*) are collected, and those which have risen to the top are dried and again beaten with sticks and then plunged into water. The process is repeated three times, and each time the *niwal* becomes poorer. One form of adulteration is to mix *niwal* of the third with *niwal* of the first process. The saffron obtained in this way is lighter in colour and of fainter scent than the *monglā*, and is known to the trade as *lacha*, and sells at 12 annas per *tola*. The saffron, when made is exported by post.

Cultivation of Dal Lake.

Next to the saffron cultivation in interest come the floating gardens of the Dal Lake, which resemble the 'chinampas' of Old Mexico. The whole cultivation and vegetation of the lake is full of interest and of great importance to the people. The *rādh* or floating gardens are made of long strips of the lake reed, with a breadth of about six feet. These strips can be towed from place to place, and are moored at the four corners by poles driven into the lake bed. When the *rādh* is sufficiently strong to bear the weight of a man, heaps of weed and mud are extracted from the lake by poles, formed into cones, and placed at intervals on the *rādh*. The cones are known as *pokar*, and each cone accommodates two seedlings of melons or tomatoes, or four seedlings of water-melons or cucumber. Everything that plant life requires is present. A rich soil and ample moisture, with the summer sun, help to produce vegetables in surprising abundance and of excellent quality. Not inferior to the floating gardens in fertility are the *demb* lands, which are formed along the sides and sometimes in the middle of the lake when the water is shallow. The cultivator selects his site, and plants willows and sometimes poplars along its four sides. Inside these he casts boatloads of weed and mud

until his land is above the flood-level, and year by year he adds a new dressing of the rich lake weed and mud. Around the *demb* plot run little water-channels from the lake, so that moisture is always present; and on the *demb* a great variety of crops is raised. Rapeseed, maize, tobacco, melons and other *Cucurbitaceae*, potatoes, onions, radishes, turnips, egg-plants, white beans, peaches, apricots, and quinces flourish on this rich soil; and if it were not for the constant liability to forced labour, and for the curious system under which revenue is collected daily from the half-amphibious dwellers on the Dal Lake, the cultivators of the *demb* lands might be the most prosperous people in Asia. The system is of importance, as it is not confined to the Dal Lake; all over Kashmīr the people who live by the great swamps have begun to construct these curious oblong patches.

Tobacco. Tobacco is cultivated in many parts, but is chiefly grown in and around Srīnagar and the smaller towns. The ordinary cultivator does not grow the plant, and it is almost entirely in the hands of the gardener class which exists in the city and the towns. The plant yielding the most esteemed tobacco grows in one part of Srīnagar, and is known as *brewari* (*Nicotiana Tabacum*). It has pinkish flowers, and its product, which is of a bright yellow colour, is extremely mild and less pungent than the *chilāsi* variety, introduced from the Punjab. The *chilāsi* is *N. rustica*, a plant with pale yellow flowers. Tobacco is sown in April, and is picked about the end of August. It requires very rich soil, and is irrigated by the pot and lever system. Formerly the State took tobacco as revenue and allowed a high commutation rate for the crop; but of late years tobacco has not been accepted in payment of revenue, and it is thought that the cultivation is not increasing. The local use of tobacco passed out of fashion at the great famine, and the narcotic is now chiefly taken in the form of snuff, which is imported from Peshāwar.

In the same rich land, black with poudrette, which the gardener class of the city and towns cultivate so carefully and well, the opium poppy is raised, and its dried capsules are used in medicine. *Ajwain* and *kālā zīra* (*Carum sp.*) are two garden spring crops, cultivated for local use as condiments for improving the condition of horses and other cattle. They are largely exported to India, Ladākh, and Afghānistān. Vegetables are of great importance, and every villager has his small garden plot, where he raises a wealth of food with very small effort. In the neighbourhood of Srīnagar some care is taken in the

Vegetables.

selection of seed, and the villager often buys his seed from the city; but in the remote corners of the valley very little attention is paid to this class of cultivation, and the vegetables are poor, fibrous, and small.

The national vegetable is the knol-kohl. It is a hardy plant, and in years of favourable rains large crops are raised without much labour. The green variety is the commonest; in the summer the leaves are eaten as spinach, while the root is kept for the winter. Next in importance is the turnip, which is largely cultivated. The root is cut into slices and dried for the winter. Vegetable marrows abound, and they too are dried in the sun and festooned on ropes for winter use. They are grown in raised cones of earth, through which the air passes easily to the roots. Tomatoes are a popular vegetable, but the plant is allowed to lie on the ground, and the fruit is small and ugly. It is cut into rings and dried in the sun for winter use. Chillies are chiefly grown by the regular gardening cultivators, and very large crops are raised in the neighbourhood of the city and the towns. Cucumbers of a large size are grown in abundance on the Dal Lake, but they are not common elsewhere. The egg-plant is well-known in the valley; and last, but not least, the potato is gradually extending. On the hill slopes of the Trahal *ilāka*, in Naubug, and in one or two other places, excellent potatoes are raised; and now that the old fear that anything good would either be seized or would lead to an enhancement of revenue is passing away, they will be a common crop throughout the valley. The soil of the valley is well drained, friable, and loamy, and every condition requisite to successful potato cultivation is present. Nature is so bountiful that the Kashmīri cares little for vegetables in the spring or the summer, and his one idea is to grow something that will last him through the winter.

Wild herbs.

Various herbs are eaten as vegetables in the spring and summer: thistles, nettles, the wild chicory, the dandelion—in fact, every plant which is not poisonous goes into the cooking-pot, and even the stalk of the walnut catkin is not despised. In the hills a dainty dish of the wild asparagus can be easily obtained, and wild rhubarb cooked in honey has its charms.

Fruits.

Kashmīr is a country of fruits; and perhaps no country has greater facilities for horticulture, as the indigenous apple, pear, vine, mulberry, walnut, hazel, cherry, peach, apricot, raspberry, gooseberry, currant, and strawberry can be obtained without difficulty in most parts of the valley. The fruits are a great

help to the people as a food, and they come in a pleasant and changing succession. When the first days of summer arrive, the mulberry-trees are surrounded by villagers with their outspread blankets, and by cattle, ponies, and dogs, who all munch the sweet black or white fruit. There are grafted varieties, the best of which is *shahtūt*, purple and juicy, and much esteemed as a preserve. With an eye to the winter the provident cultivator stores away the mulberries which he cannot eat, and they retain their sweetness long. The apricot ripens next, and they too are quickly eaten or stored away for the winter; but the Kashmīri looks on the apricot as intended to give oil rather than fruit. This fruit is also used by the silversmith for cleaning his metal, and by dyers as an astringent. The cherry is usually of the black morella variety, sour in taste, yet appreciated by the people; but in places the delicious whiteheart (an introduction from Europe via Arabia, Persia, and Afghānistān) is cultivated. Its Kashmīri name, *gilas*, is a corruption of Cerasus. People say that it is indigenous, and it is found in places where one might almost imagine it was self-grown. The wild plums are excellent, and the cultivated plums are often very fine. The peach that has extended its area from cultivation is small but refreshing, and a wild raspberry is as good and as delicate in flavour as the cultivated raspberry of England. The gooseberry is small and flavourless, but the wild strawberry and black currant are excellent.

Apples. The most popular apple is the *anbru* or *amri*, which has a large round red and white sweet fruit, ripening in October and keeping its condition for a long time. This is exported in large quantities, and it finds favour with the natives of India for its sweetness and handsome appearance. To an English taste it would seem woolly and flavourless. The *mohi amri* is like the *amri*, but is more acid and redder. It is largely exported. The *khuddu sari* apple is said to have been introduced from Kābul. It is long in shape, and is juicy and rather acid, ripening early and not keeping. But the best apple, so far as flavour goes, is the little *trel*, which abounds in the neighbourhood of Sopur. There are three common kinds: the *nabadi trel*, which is yellow; the *jambāsi trel*, which turns red; and the *sil trel*, which is rather larger than the *nabadi* and *jambāsi*, and of a deep red colour. When ripe these little apples have the most delicious taste, half sour, half sweet, and when they rot they are exactly like the medlar in flavour. From this variety when picked at the right time, excellent cider has been made. A superior variety of the *trel* is the *khatoni*

trel, which is larger but possesses all the flavour of the smaller kind. There are many other kinds, but the Kashmīri would give the palm to the *dud amri*, which is the sweetest and finest of the *amri*. Many of the wild apples, such as the *tet shakr* and *malmu*, are very refreshing, and it is a curious fact that the greater part of the orchards consist entirely of wild trees. About the beginning of September the people pick the wild apples and the *trel* apples, and having cut them in half dry them in the sun.

The pear is as yet of secondary importance, and does not form a large article of export. But several very good pears are cultivated, the best of which are the *nāk satarwati*, which has a beautiful shape and a sweet juicy flesh, and the *nāk gulābi*, which has a pretty red skin and is a very pleasant fruit. The Kashmīris, though they think it essential to peel an apple, never peel pears. They also hold that it is dangerous to eat pears in the winter. Cold in the head and the eyes is the result of such indulgence. The early pear is known as the *gosh bug* and is very refreshing, and the later fruit is called *tang*. None of these will keep for long, and late pears are required. From the State nurseries a splendid French pear has been sent out all over the valley, but unless these are most carefully packed and quickly transported they cannot reach India. The wild pear is found all over the valley, and it often resembles the perry pear of Herefordshire. Pears.

The quinces, sour and sweet, are famous, and in the gardens of the Dal Lake splendid specimens of this fruit are to be seen. The tree is grown for its seed, which is exported to the Punjab. Pomegranates are common, but are not of any especial merit. Quinces and pomegranates.

In old days Kashmīr was celebrated for its grapes; but now, if a few vineyards at the mouth of the Sind valley be excluded, it is difficult to obtain a good dessert grape in the country. Everywhere one sees giant vines climbing up poplars and other trees, but they are often wild, and their fruit is poor and tasteless. The people say that they cut down their good vines in order to avoid the exactions of officials. The grapes, white and red, from the State vineyard at Raipur in the Sind valley are delicious, and efforts are being made to reproduce the Raipur vines in other parts of the valley. With the decline of the eating grape there has been an attempt to introduce the wine grape, and at present there are 389 acres of vineyards on the shore of the Dal Lake. The vines were introduced from Bordeaux in Mahārājā Ranbīr Singh's time, and no expense was spared to make the scheme a success. Perhaps the vines Grapes.

of Burgundy would have been more suitable. Costly distillery plant was imported and set up at Gupkar on the Dal Lake, and wines of the Médoc and Barsac varieties, as well as brandy, have been manufactured year by year. The only market at present is Srīnagar, as the long road carriage and the duties levied at the frontier make it difficult to deliver wine in India at a moderate price. In 1900–1 the gross receipts were Rs. 33,000, and the net profit had averaged about Rs. 11,000 in the preceding four years.

Hops. Hops were also introduced by Mahārājā Ranbīr Singh, and the hop garden at Dubgam below Sopur yields a handsome return to the State. In 1900–1 the total produce was 25,000 lb. The crop is sold at from 12 annas to a rupee per pound, and fetched Rs. 21,000, while the expenses were only Rs. 5,600.

Walnuts. The walnut-tree is indigenous to the country, and is known by the vernacular name *vont dun* ('hard walnut'), as under ordinary circumstances one is unable to break the shell. The fruit is useless, but the bark used to be a large export to the Punjab. The fruit of the cultivated tree is an important aid to the villager, though the people seem to be somewhat indifferent to its reproduction. The tree is found all over the valley, from an elevation of about 5,500 feet to 7,500 feet. It is propagated from seed; and although grafting is not uncommon, the general idea seems to be that the three varieties, the *kāghazi*, the *burzal*, and the *wantu*, reproduce themselves from seed. Hitherto walnuts have been grown for oil and not for eating, and the *wantu*, in spite of its thick hard shell, is the largest fruiter and gives the most oil. The *burzal* stands half-way between the *kāghazi* and the *wantu*, and is like the ordinary walnut of England. Some of the trees reach an enormous size, and the finest specimens are to be found as one ascends the mountain valleys. In former times the State accepted walnut oil in payment of revenue, and it was more profitable to the villager to give oil as revenue than to sell the nuts to Punjābi traders. Now no oil is taken as revenue, and the export of walnuts is rapidly increasing. The Kashmīris do not care for the nut as a food, as it is heating, but it always forms part of the New Year's presents among Hindus and Musalmāns. Not long ago the walnuts were exposed to a very serious danger. In Paris there was a demand for the huge warts which grow on the walnut stem, the wood of which is used by cabinet-makers for veneer work, and a Frenchman obtained from the State the right to saw off these warts. Countless trees were destroyed, for life went with the wart

Another danger to which walnuts, like other fruit-trees, are exposed is the occurrence of the *kut kushu*, an icy mist which settles over the valley in severe winters, and freezes out the life of the trees.

Almond.

Large almond orchards are scattered over the valley, and many of the hill-sides might easily be planted with this hardy and profitable tree. It is a somewhat uncertain crop, but very little attention is paid to its cultivation, and as a rule the almond orchards are unfenced. There are two kinds, the sweet and the bitter; the former is worth double the latter in the market. Ruined almond gardens in all parts of the valley attest the fact that State enterprise cannot succeed in horticulture.

Water-chestnut.

There are several varieties of the *singhāra* (*Trapa bispinosa*), but all seem to have white flowers floating on the surface of the water on stems supported by air vessels. When the fruit ripens, the nuts sink to the bottom of the lake. The *singhāra* is found on the Dal Lake and in other localities, but its home is the Wular Lake. Of the chief varieties the best is called *bāsmati*, in honour of the rice of that name. This is a small nut with a thin skin, and gives one-third of kernel for two-thirds of shell. The *dogru* is a larger nut with a thicker shell; and the *kangar* has a very thick shell with long projecting horns, and gives the least kernel of all. Attempts have been made to propagate the *bāsmati*, but it is found that after one year the inferior varieties assert themselves.

Cattle.

The cattle of Kashmīr are small but hardy, rather bigger than Brittany cattle. They have humps, and their prevailing colour is black or grey. Very little attention is paid to selection in breeding, but a strain of Punjab blood has entered the valley, and the dairymen favour cows of this type. The improvement of the local breeds has been recently considered by a committee. As summer approaches, all cattle, save the requisite plough-bullocks and the cows in milk, are driven off to the mountain pastures, returning in the autumn to the villages. Great pains are taken to store fodder for the winter, and there are many excellent grasses and fodder trees. The Gūjars, who live on the fringe of the forests, keep a large number of buffaloes and produce a considerable quantity of *ghī*.

Sheep and goats.

Sheep are largely kept. They supply warmth, clothing, and manure, and are of great importance to the villagers. As the days grow warmer, the sheep move up to the grand pastures above the forests, and return in the autumn. The sheep are made over to professional shepherds when they go to the

mountains. In the winter they are penned beneath the dwelling-rooms of the villagers, and much of the Kashmīri's comfort in the cold months depends on the heat given out by the sheep. The wool is excellent, but it varies in quality. Roughly speaking, the finest wool is found in the north of the valley where the grasses are good. For winter fodder the Kashmīri depends on willow leaves and the sweet dried leaves of the flag (*Iris*). Salt is always given to the sheep.

Goats are not numerous in the valley, but every year enormous flocks are brought up to the mountains. They do much injury to the forests.

Ponies. The ponies are small, but wiry and of great endurance. Every village has its brood mares, but no care is taken in the selection of sires. There is a great future for rational breeding, and also for mule-breeding.

Poultry. Poultry is abundant. The best breed of fowls is found in the Lolāb valley. Geese and ducks are common, and there is a large export of the latter to the Punjab. Turkeys have not yet succeeded in Kashmīr.

Honey. Honey is produced in the higher villages of the valley. One house will often contain many hives, and in a good year a hive will give 8 seers of comb. The hive consists of two large concave clay plates let into the wall of the house, and in the outer plate there is a small hole through which the bees enter. The honey is clear and excellent.

Sericulture. It is believed that the silk industry of Kashmīr is of very ancient date, and that the valley furnished part of the Bactrian silk which found its way to Damascus. In 1869 Mahārājā Ranbīr Singh, who was an enthusiast in new industries, organized sericulture on a very large and expensive scale. But the industry was unpopular, as it was conducted on purely official lines in which coercion played a great part. There was no real skilled supervision; disease attacked the silkworms, and the enterprise languished. But in spite of mistakes and failure, it was proved that Kashmīr could produce a silk of high quality. In the Kothar valley to the south the industry lingered on, and the Settlement Officer, Mr. (now Sir) Walter Lawrence, fostered it, but avoided any large outlay. Excellent silk was produced in 1894, and was placed on the English market with satisfactory results. Later, in 1897, an expert was employed, and the State started sericulture on approved European principles with Italian reeling machinery. All attempt to raise local seed was abandoned, and seed was imported annually on a large scale. The results have been

surprising. The industry is no longer confined to Kothar, but has spread all over the valley, and its further progress depends on the maintenance and extension of mulberry trees.

Ten filatures have been built, containing 1,800 basins for reeling cocoons, fitted with Italian machinery and giving employment to over 5,000 people in Srīnagar. The quality of the silk steadily improves, and it now commands a price very slightly below Italian silk. In 1897 only 406 ounces of eggs were imported, while in 1906 the import was 27,500 ounces. The number of *zamīndārs* taking seed has risen in the same period from 150 to 14,000, and the weight of cocoons reared from 375 to 21,400 maunds, while the payments to the rearers increased from Rs. 4,300 to Rs. 3,28,500, all the eggs and mulberry leaf being given free of cost. The total production in 1905–6 was 109,072 pounds of raw silk, and 43,349 pounds of silk waste. The profits since 1897, when the industry was started on a scientific basis, have been 15·4 lakhs, of which 4·6 lakhs were made in 1905–6. The total capital outlay has been Rs. 7,25,000, while the working expenses are about 7 lakhs a year.

Forests.

The forests of the State are extensive and valuable, and their conservation is of great importance in the interests of the country drained and irrigated by the rivers passing through them. Including the Bhadarwāh *jāgīr*, which contains the finest quality of timber, the area is reported as 2,637 square miles of all kinds, comprising *deodār*, firs, pines, and broad-leaved species. This may be divided into the drainage areas of the Jhelum (1,718 square miles), Chenāb (806), and Rāvi (113). The *deodār*, which is the most valuable species, extends between 5,000 and 9,000 feet above sea-level, and is at its best between 6,000 and 9,000 feet. The blue pine appears at about 6,000 feet, and extends to nearly 10,000 feet, the finest specimens being found mixed with *deodār*. A zone between 8,000 to 11,000 feet is occupied by silver fir, which occurs pure in dense forests at the lower elevation and is mixed at greater heights, first with maple and then with birch. Forest vegetation above 11,000 feet consists of dwarf rhododendron and juniper.

Deodār.

The total area under *deodār* is about 543 square miles. In the Kashmīr Valley it is found principally, indeed almost entirely, in the north-west—that is, the district known as Kāmrāj—and the largest areas are in the Utr Machipur *tahsīl*. In Udhampur district, which includes the Kishtwār and Padar *tahsīls*, there are 198 square miles of *deodār*-bearing tracts situated on the Chenāb and its affluents. These forests are of

a very good class, containing many fine trees of 12 to 18 feet girth, and the reproduction is mostly good. In the Muzaffarābād district, which contains the valley of the Kishangangā river and that of the Jhelum from Kohāla nearly up to Bāramūla, there are estimated to be 158 square miles of *deodār* forest. Rāmnagar, formerly the *jāgīr* of the late Sir Rājā Rām Singh, K.C.B., contains a very small proportion of *deodār* forest, and it has been generally overworked. Finally, the Jasrota district, situated on the right bank of the Rāvi river, contains a small area of *deodār* in the Basoli *tahsīl*. These forests also were formerly held in *jāgīr* and were practically denuded of all mature trees, so that no fellings can take place for many years to come.

Pines and firs.

Pines and firs occupy about 1,100 square miles, and *chīl* (*Pinus longifolia*) 473 square miles. The last is found in lower altitudes below the blue pine and *deodār*, existing in practically pure forests in Muzaffarābād, Bhimbar, Rāmnagar, Udhampur, Jammu, and Jasrota. The Kashmīr Valley, having a lowest elevation of 5,200 feet above sea-level, contains no *chīl*. The Bhimbar Forest division (and district) has the greatest area under *chīl* (220 square miles), situated principally in the Kotli and Naoshera *tahsīls*. Some of these forests are of very fine quality, and will in time give a large number of mature trees for sale, but at present they are not being worked. Next to this comes the Rāmnagar division, which includes part of the Jammu district; but these forests are badly stocked and have been overfelled, and will take many years before they can be of much value as a commercial asset. The Chenāb division, which also comprises part of the Jammu district, has some forest of poor quality. In Udhampur most of the forest is too far from a market to be profitable. When good cart-roads or light railways have been made, it may be possible to utilize the Bhimbar and Jammu *chīl* forests for the distillation of turpentine, but at present the cost of carriage is prohibitive.

Next come the fir forests. Owing to their altitude, it would naturally cost more to extract their timber; and the selling price of fir being very low, these forests are unworkable except in the Kashmīr Valley, where the timber is used as firewood mainly for the silk factory at Srīnagar. Perhaps in the future, when artificial preservation of the timber in the form of sleepers, &c., by creosoting, has been resorted to, these forests will prove of great value.

Miscellaneous.

Lastly, there are the forests of broad-leaved species, and these are at present only of value in the Kashmīr Valley for the supply of firewood to the city of Srīnagar. Bamboos

are found mainly in the Jasrota district on the Rāvi river, where there are about 3,200 acres of mixed forest which contain the so-called male kind (*Dendrocalamus strictus*). They are saleable at a good price, but are at present subject to much injury from the Gūjar tribes, who hack them for fodder for their cattle. The grass areas are mostly blanks inside *deodār* and other forests, which are used as grazing-grounds by the villagers.

In the Kashmīr Valley the forests supply timber and fire-wood for local use and also logs for export. During the past few years *deodār* sleepers have been exported down the Jhelum river, the sleepers paying very well, though the quality is not so good as in other districts. Little *deodār* is used in Srīnagar in comparison with blue pine, which, being both very durable and cheaper than *deodār*, is the favourite building material. From Udhampur both logs and sleepers of *deodār* are exported down the Chenāb to Wazīrābād. The trees being of better quality, higher prices are obtained for the produce than for that of Kashmīr. From Muzaffarābād timber in the log and sawn into sleepers is exported down the Jhelum. The sleepers are entirely of *deodār*, but logs of both blue and long-leaved pine are also sent down in small quantities. These three districts, Kāmrāj, Udhampur, and Muzaffarābād, give the greater part of the forest revenue, which amounted to 9·8 lakhs in 1904–5, while the expenditure was 3 lakhs. Production.

Up to the present, owing to the weakness of the forest establishment, little has been done in the matter of artificial reproduction of *deodār*, nor is it necessary. Owing to the protective measures already taken, the three important species, *deodār*, blue pine, and the long-leaved pine, are rapidly filling up blanks in the forests. The reproduction of *deodār* by natural means, whether in Kashmīr, Udhampur, or any other district, is remarkable, nor is the blue pine at all backward, while in the Kotli and Naoshera *tahsīls* of Bhimbar district the restocking of blanks inside and outside the forests is all that can be desired. Since the last great seed year of 1897 myriads of self-sown *chīl* have appeared and are now fine healthy plants, ranging from 6 to 9 inches in height, so that unless destructive fires occur there is little or nothing to be done in the matter of restocking denuded areas or blanks. So far fire protection has been unnecessary and hardly anything has been expended on it, and the only parts protected are the Kotli *tahsīl* forests. The greatest need at present is protection from the damage done by graziers. Improvements.

About three-quarters of the State forests have been demarcated; but before really scientific forestry can be introduced, it will be necessary that a regular survey should be made and a settlement of the forests effected, and the great task of drawing up working-plans for future guidance must be undertaken.

Before 1891 there was no proper management of the forests, and much damage was done by allowing traders to cut in the forests on payment of royalty without any supervision, while villagers also did immense injury to the forests in various ways, the State making little or no revenue. In 1891 the first attempts were made to put matters on a proper basis, with the result that, while most forms of forest injury except grazing have ceased, the profits have increased largely. Thus the net revenue in 1904–5 was 6 lakhs, while before 1891 it hardly exceeded 2 lakhs. The Forest department is under the control of a European Conservator, assisted by a staff of subordinates.

Mines and minerals. Some authorities have held that there is not much hope of mineral wealth in the State; and among the reasons given is the fact that, as a rule, if valuable minerals exist, the natives of the country know of their existence. The Kashmīris, however, have excellent reasons for reticence on the subject of minerals, and the find of valuable sapphires in Padar in 1882, and the more recent discovery of coal at Ladda and Anji in the Udhampur district of Jammu territory, give hopes for the future. Vast fields have been found, in two sections of which it is estimated that there are 11 million tons of workable coal. The coal is extremely friable, dirty, and dusty. Some of it cokes strongly if subjected to great heat. It is held by competent authorities that the washed and briquetted coal of these fields will have a value equal to, if not greater than, Bengal coal. Exploration for minerals has not yet been attempted on sound or business-like lines. Excellent iron has been obtained at Sof in the south of Kashmīr; good limestone is available in large quantities; gypsum is abundant; and a recent discovery of gold has been made at Gulmarg, the chief summer resort of European visitors to Kashmīr.

Arts and manufactures. The industries connected with sericulture, oil-pressing, and the manufacture of wine and brandy have already been mentioned, but the State is still more celebrated for its arts. The most important of these is described in the article on SRĪNAGAR, but other places also possess considerable reputation for various classes. Wood-carving is practised

at many places, and that turned out at Bijbihāra is especially noted. The work is artistic, but suffers from the fact that the Kashmīri is a bad carpenter. Lacquered wood-work is produced at Kulgām. Woollen cloth (*pattū*) is woven all over the State, the best work being produced in the north, while the finished product of the south is especially famous. Blankets are made in many places, and sometimes fetch Rs. 25 a piece. The blacksmiths are very skilful, and some have been able to make surgical instruments and repair gun-locks. The city of Srīnagar is noted for its silver, copper, wood-carving, and lacquer. The shawl and paper industries are almost extinct, but many of the shawl-workers have become expert weavers of carpets or have taken to embroidering felts. Good embroidery is also turned out at Islāmābād. An industry started very recently, in connexion with the development of sericulture, is the weaving of silk cloth. In 1906 about 100 looms of improved pattern were imported and set up.

Commerce and trade.

Up to quite recent times Kashmīr was almost a self-supporting country, and the chief imports—piece-goods, metals, salt, sugar, tea, and tobacco—were of modest dimensions. Before the opening of the cart-road from Rāwalpindi to Bāramūla in 1890, the trade was carried by Kashmīris who went down every winter to work in the Punjab, and brought back domestic requisites, or by the professional muleteers, or by Punjābi bullock-drivers. There were three trade routes. The most direct crossed the Banihāl pass and ran to Jammu, the railway terminus; the most popular route followed the old imperial road over the Pīr Panjāl, reaching the railway at Gujrāt; and the third was known as the Jhelum valley road, which is now the cart-road and the main line of communication with the Punjab.

In 1892–3 the total imports from India were valued at 48·7 lakhs. In 1902–3 the imports reached 118 lakhs, but the trade of that and later years was greatly impaired by the prevalence of plague in the Punjab. In 1904–5 the total value was 115 lakhs. The table on the next page shows the value of the more important imports in the years chosen for comparison.

There can be little doubt that Kashmīr has increased enormously in prosperity of late years. The land revenue settlement has turned the agricultural classes from serfs into well-to-do peasants, and their wealth is reflected in their increased purchases. The increase in the import of salt is especially satisfactory, as in 1892 it was shown that the annual average of consumption in Kashmīr was exactly half of that prevailing in the Punjab.

	1892-3.	1902-3.	1904-5.
	Rs.	Rs.	Rs.
Piece-goods :—			
European	76,688	34,72,934	35,92,556
Indian	21,572	9,60,185	7,86,485
Metals :—			
Brass and copper . .	1,33,143	1,42,410	99,888
Iron	1,31,270	4,92,020	1,19,567
Salt	4,83,293	8,69,761	9,32,601
Sugar :—			
Refined	4,82,584	9,21,872	8,28,675
Unrefined	1,15,433	2,47,686	3,43,761
Tea :—			
Indian	1,73,730	3,57,638	5,22,871
Foreign	2,030	1,360	3,615
Tobacco	1,01,253	2,32,302	3,91,960
Petroleum	56,112	81,795	1,84,164

In 1892–3 the total exports were valued at 53·3 lakhs. In 1902–3 the value reached 99·6 lakhs, and in 1904–5, 192 lakhs.

The following table shows the value of the more important exports in the years selected :—

	1892-3.	1902-3.	1904-5.
	Rs.	Rs.	Rs.
Drugs, not intoxicating . .	1,60,625	5,06,192	5,78,425
Dyes	2,74,826	95,533	48,023
Fruits	2,38,683	4,58,702	7,48,883
Hides	1,86,594	2,97,617	7,98,160
Skins	1,39,386	3,43,350	5,63,065
Ghī	16,50,172	20,05,849	30,02,974
Linseed	1,335	6,55,674	73,952
Wool :—			
Manufactured piece-goods .	5,91,439	7,51,365	10,75,047
Shawls	2,19,275	35,600	1,000

The value of fruits exported is increasing steadily, and would expand further with more rapid communications. *Ghī* also is a very important export. Perhaps one of the most remarkable increases is that in linseed, which possessed very little value before the opening of the cart-road. The trade in shawls was practically dead before 1892–3. An important new staple not included in the list must be noticed. Raw silk produced in the Kashmīr Valley has been exported in rapidly increasing quantities and values, and there are indications that it will become one of the most important products of the country. The value increased from Rs. 7,000 in 1897–8 to 13·6 lakhs in 1902–3 and nearly 21 lakhs in 1904–5.

Through trade.

Another item of some importance is the trade which passes through Kashmīr between India, Chinese Turkistān, and

Tibet via Leh. In 1904–5 the total value of this trade was 61·2 lakhs. It is subject to considerable fluctuations owing to great physical difficulties, the keen rivalry of Russia, and the passive obstruction of Tibet. During the ten years ending 1901 the average value was 44·3 lakhs, the maximum being 62·2 lakhs in 1895–6, and the minimum 30·1 lakhs in 1891–2. The imports from Central Asia into Ladākh amounted to 17·8 lakhs. Of this, about 14 lakhs came from Chinese Turkistān and the balance from Tibet. Goods to the value of 11·3 lakhs found their way to the Punjab via Kashmīr, others going via Kulū. The chief articles were raw silk (5·9 lakhs), Russian gold coins (4·3 lakhs), raw wool (3 lakhs), and *charas* (2·2 lakhs). The exports from Ladākh to Central Asia amounted to 11·4 lakhs. Of this, goods to the value of 10 lakhs went to Chinese Turkistān and the remainder to Tibet. The more important articles of export were: European cotton piece-goods (3·4 lakhs); coral (1·2 lakhs); silk goods, European (1·8 lakhs), Indian (Rs. 54,000). The value of trade passing from India to Ladākh was 14·3 lakhs.

Means of communication.

The nature of the country renders communications difficult. In the valley proper the Jhelum forms a great waterway, but other rivers are not navigable. Throughout the greater part of the State the roads are chiefly fair-weather tracks and are not used for wheeled traffic. A cart-road has, however, been constructed from Srīnagar, through Bāramūla and down the Jhelum valley to Abbottābād in the North-West Frontier Province and to Murree in the Punjab, while another cart-road is being constructed from Srīnagar to Udhampur. The principal roads within the State lead from Srīnagar to Islāmābād and Jammu over the Banihāl pass (9,200 feet); to Shupiyan, Bhimbar, and Gujrāt in the Punjab over the Pīr Panjāl (11,400); to Gandarbal and Ladākh over the Zoji La (11,300); and to Gilgit over the Rājdiangan (11,700), and Burzil (13,500), or Kamrī (13,100). Much has been done in recent years to improve these routes, and a number of smaller roads, such as that from Srīnagar to Gulmarg, which is practicable for tongas. A road cess amounting to 2½ per cent. on the revenue has been imposed, in place of the forced labour which used to be exacted. The Jhelum is crossed by a number of wooden bridges on the cantilever principle at Srīnagar, and over the hill torrents swing frail suspension bridges consisting of cables made of plaited twigs or buffalo hide. The latter sometimes reach a span of 300 feet, and are renewed every three years, if they have not been carried away meanwhile by floods.

The only railway at present is a short length of 16 miles, constructed at the cost of the State, which is included in a branch of the North-Western State Railway from Wazīrābād through Siālkot. It cost 9·6 lakhs, and has usually earned a net profit of 1 to 2½ per cent., in addition to the rebate allowed from traffic exchanged with the North-Western Railway. A line has been surveyed along the Jhelum valley route, and it is proposed to work this by electricity derived from the river.

Post Office.

The State is included for postal purposes in the circle administered by the Postmaster-General of the Punjab and North-West Frontier Province. Formerly Kashmīr had its own postal service and used its own postage stamps, but as far back as 1876 there were British post offices in Srīnagar and Leh. The State stamps were used only for local purposes, and letters and other postal articles passing between the State post offices and British India were charged with both Kashmīr and Indian postage. In 1894 the State posts were entirely amalgamated with the Indian postal system. The following statistics show the advance in postal business since 1880–1 :—

	1880–1.	1890–1.	1900–1.	1904–5.
Number of post offices	2	2	81	78
Number of letter boxes	...	...	199	207
Number of miles of postal communication	...	...	1,588	1,678
Total number of postal articles delivered :—				
Letters	48,126	138,216	1,414,140	1,519,674
Postcards	3,406	26,858	1,209,182	1,639,430
Packets	832	16,146	96,356*	166,400
Newspapers	42,978	70,226	193,414†	246,974
Parcels	1,742	4,914	32,786	77,402
Value of stamps sold to the public Rs.	‡	‡	81,030	1,06,028
Value of money orders issued Rs.	‡	‡	3,10,591	16,37,787

* Including unregistered newspapers. † Registered as newspapers in the Post Office. ‡ The figures are included in those of the Punjab.

Famine.

The accounts of early famines are vague, but it is known that they occurred. While Sher Singh was governor (1831–3) severe distress was felt and many people fled, but the next governor, Miān Singh, did much to restore prosperity by importing grain. It is said that the population was reduced to a quarter in that famine. In 1877–9 a worse disaster was experienced and the loss of life was enormous. Famines in Kashmīr are not caused by drought, as in India, because the

rice crop is generally protected by irrigation. The greatest distress is due to the fall of rain or snow while the rice and maize are ready for harvest. The famine of 1832 was caused by early snow, and was aggravated by the floods which followed. In 1877 rain fell almost continuously for three months, and the old system of collecting revenue in kind prevented cultivators from gathering their crops when opportunity served. Food-grain was not to be had; and when imports were made at the expense of the State, the corrupt officials were the chief persons to profit. It is improbable that such distress can be experienced again, owing to the construction of a cart-road, and the change in the method of collecting revenue.

Political relations. The State is in direct relationship with the Government of India, who is represented by an officer of the Political department, styled the Resident. His head-quarters are at Srīnagar. At Gilgit a Political Agent exercises some degree of supervision over the Wazīr Wazārat, and is directly responsible to the Government of India for the administration of the outlying petty States. A British officer is stationed at Leh to assist in the supervision of Central Asian trade.

Administration. On his accession to the *gaddi* in 1885, the present Mahārājā was entrusted with the administration of the State, aided by two ministers: but in 1887, at his own request, he was relieved from all part in the administration, which was then placed, subject to the control of the Resident, in the hands of a Council consisting of His Highness's brother and two selected officials from the British service. In 1891 the Mahārājā assumed the presidentship of the Council, while his brother, Rājā Sir Amar Singh, K.C.S.I., became vice-president. The Council was abolished in 1905, and its powers were conferred on the chief himself. Under the new arrangements the Mahārājā administers the State. There are three ministers, in charge of the revenue, judicial, and home departments; but business requiring the orders of the Mahārājā is laid before him by the chief minister, Rājā Sir Amar Singh. For some time past the departments of finance, revenue settlement, forests, and public works have been in charge of British officers, whose services have been temporarily placed at the disposal of the Darbār.

The four chief executive officers are: the governor or Hākim-i-Ala of Jammu, the governor of Kashmīr (each aided by a general assistant), the Wazīr Wazārat of Gilgit, and the Wazīr Wazārat of Ladākh.

In Jammu there are five districts, each in charge of a Wazīr Wazārat, an official whose average salary is Rs. 250 a month.

Under the Wazīr Wazārat are *tahsīldārs* and sometimes sub-divisional officers. All these officers exercise revenue, civil, and criminal jurisdiction, with regular stages of appeal. In revenue cases the appeal lies to the governor, and from him to the revenue minister. In civil and criminal judicial cases the appeal lies to the Chief Judge of Jammu. From him there is an appeal to the judicial minister, who is virtually the final court, and it is only on rare occasions that an appeal is made from him to the Mahārājā. All death sentences passed by the Chief Judge require the confirmation of the Mahārājā. In 1900–1 there were eighty-one courts of all grades, of which eight exercised criminal jurisdiction only. Although there is a centralized form of government as in British India, the real power rests with the *tahsīldār*, and distance and the absence of easy communications are practically checks on the use or abuse of appeals.

Before 1892, when the law of limitation was introduced into Jammu, litigation was not very heavy and the people frequently settled their differences out of court. The improvement in the courts, and the effects of this alteration in the law, are shown by the fact that the number of suits for money or movable property increased from an average of 3,735 during the ten years ending 1890 to 10,766 in the next decade, and was 12,160 in 1900–1. The system of registration for deeds resembles that in British India. In 1900–1 the number of documents registered was 1,348.

Crime is not serious in the Jammu province; but there has been an increase in cases of theft, hurt, and mischief, due to the greater activity of the police force, which is being gradually assimilated to the rules and procedure prevailing in British India. In the whole State 17,320 persons were brought to trial in 1900–1, of whom 2,169, or 13 per cent., were convicted.

In Kashmīr the *tahsīls* in the valley are superintended by the governor himself, while those of the Muzaffarābād district are in charge of a Wazīr Wazārat subject to the governor and the Chief Judge, whose offices are in Srīnagar.

Finance. The finances of the State are immediately controlled by an accountant-general, who for some years has been lent by the British Government. The revenue and expenditure for 1895–6, 1900–1, and 1905–6 are shown in tables at the end of this article (pp. 84–5). In the last year the total revenue was 93 lakhs, the chief items being land revenue (38·9 lakhs), forests (13 lakhs), customs and octroi (9·2 lakhs), and scientific and minor departments (2·2 lakhs). The expenditure of one crore included

public works (30·8 lakhs), military (13·8 lakhs), privy purse and courts (10·9 lakhs), scientific and minor departments (2·1 lakhs), and land revenue (6·1 lakhs). The State is very prosperous, and has more than 46 lakhs invested in securities of the Government of India.

The British rupee is now the only rupee used in the State. Previously three coins were current: namely, the *khām* rupee, value 8 annas, bearing the letters J.H.S. (these letters have given rise to many stories, but they were really a mint-mark to indicate Jammu, Hari Singh); the *chilki* rupee, value 10 British annas; the *Nānak shāhi* rupee, value 12–16 British annas. Currency.

The *kharwar* or ass-load, which has for centuries past been the standard of weight, is equivalent to $177\frac{2}{3}$ lb. The word is usually abbreviated to *khar*. Land measures are calculated not by length and breadth, but by the amount of seed required by certain areas of rice cultivation. It has been found by measurements that the *kharwar* of land—that is, the rice area which is supposed to require a *kharwar's* weight of rice-seed—exactly corresponds to 4 British acres. For length, the following measure is used:— Weights and measures.

1 *gira* = $2\frac{1}{4}$ inches.
16 *giras* = 1 *gaz*.
20 *giras* = 1 *gaz*, in measuring *pashmīna* cloth.

There is no sealed yard measure in Srīnagar, but from frequent experiment it was found that the *gaz* of 16 *giras* is about $\frac{1}{2}$ inch longer than the British yard.

The land revenue system has been described as *ryotwāri* in ruins. It is probable that the methods of administration introduced under Akbar led to a fictitious joint responsibility, but this was never fully accepted. The land was regarded as the absolute property of the State, and the cultivators were merely tenants holding from year to year, with no rights in the waste land. Within the village, however, the cultivators recognized the acquisition of what may be called a right of occupancy acquired by long prescription (*mīrās*). At the settlement which commenced in 1887 this custom was accepted by the State, and permanent hereditary rights were conferred on persons who agreed to pay the assessment fixed on the land entered in their names. The right is not alienable by sale or mortgage, and the holder is called an *asāmi*. Besides the ordinary village occupants there were grantees, but these have gradually been converted into *asāmīs*. Land revenue. Tenures.

Under the local Sultāns the State share of produce was Settlement.

reckoned at one-half, and this was increased to three-quarters by the Mughals. In the absence of any survey or record of rights, the revenue administration was harsh and corrupt. Land agents called *kārdārs* were appointed who parcelled out the land annually, the area of land allotted to each family being regulated by the number of individuals it contained. The State took three-fourths of rice, maize, millets, and buck-wheat, and nine-sixteenths of oilseeds, pulses, and cotton. In 1860 the share was reduced to one-half, and villages were made over to contractors called *chakladārs*, who robbed the cultivators and the State. An attempt was made in 1873 to introduce a *ryotwāri* settlement for three years, but the interests of the *chakladārs* and corrupt officials were too strong to allow such an innovation. Abul Fazl, in the *Ain-i-Akbarī*, notes that revenue was chiefly paid in kind in Kashmīr, and it was not till 1880 that a so-called cash assessment was introduced. This was made by taking the average collections for the previous three years in each village, and adding a considerable proportion, never less than 30 per cent.; but as a matter of fact, it was left to an official to decide how much revenue would be taken in cash, and how much in kind. There was no pretence of inspecting villages, or of distributing the demand fixed for a whole village over separate holdings, and the dislocation caused by the famine of 1877–9 added to the evils of such summary procedure. Two years later a system of auctioning villages was introduced, which led to even greater abuses, while the commutation rates for grain were altered, so as to injure the cultivators.

In 1887 a regular settlement was commenced in the valley by a British officer, lent by Government. It was preceded by a complete survey, and the revenue was fixed for ten years. Villages were classified according to their position, and standard out-turns of produce were calculated. In estimating the produce, allowance was made for walnut-trees, fruit-trees, apricots, and honey. The assessment was also checked by considering the collections in previous years and reports made by former contractors. Its moderation and even distribution are attested by the return of the cultivators who had fled during the disastrous famine. When the settlement was completed in 1893, it had cost 3·4 lakhs and had raised the revenue by 1·9 lakhs annually. A revision was commenced in 1898 and completed in 1905, the methods employed being similar to those followed at the first regular settlement. This has further raised the revenue in the valley from 13·4 to 17 lakhs, or by

27 per cent. The incidence of revenue varies from about 10 annas to Rs. 12 per acre, and represents an all-round rate of about 30 per cent. of the gross produce. Regular settlements have also been completed in other parts of the State, such as Gilgit, Jammu, and Baltistān. The total receipts from land revenue amounted to 38·9 lakhs in 1905–6.

Miscellaneous revenue. Excise. The Excise department of the State is chiefly concerned with the manufacture and sale of liquor, including wine and brandy, at the Gupkar distillery. In 1900 the administration was examined by an officer lent by the British Government, and as a consequence private distilleries in the province of Jammu were entirely closed. The total receipts in 1900–1 were only Rs. 50,000, but by 1905–6 they had risen to Rs. 1,37,000.

Stamps. In 1905–6 the total revenue from stamps was 2·22 lakhs, of which 1·6 lakhs represented receipts from judicial stamps.

Customs and octroi. A considerable income is derived from customs and octroi levied on the trade which passes into the State. The receipts amounted to 9·2 lakhs in 1905–6.

Cesses. Cesses are levied, amounting to 12½ per cent. on the land revenue, for the following objects: payments to *lambardārs* (village headmen), 5 per cent.; *patwāris* and *zaildārs*, 4¼ per cent.; education, ¾ per cent.; and roads, 2½ per cent.

Municipalities. There are two municipal committees in the State, one at Srīnagar, and the other at Jammu, presided over by the Chief Medical Officer, Kashmīr, and the governor of the Jammu province, respectively. The members are nominated by the Darbār as representatives of different communities. There is no separate municipal fund; the State provides the expenditure for municipal and sanitary purposes, while the receipts, such as octroi, are likewise credited to the general revenues. The expenditure in 1905–6 was Rs. 92,000, of which Rs. 6,400 was met from fees and taxes and the balance by a grant from the State. In other towns conservancy establishments are maintained, which are under the municipal committee of the province in which the town is situated. Great improvements have lately been made in the drainage system of Jammu town.

Public works. The expenditure on public works in 1905–6 was 30·8 lakhs, and will always be heavy. The maintenance of long lines of communication between Kashmīr and India and between Kashmīr, Gilgit, and Ladākh, the cost of buildings in Srīnagar and Jammu, and the enormous losses which have to be repaired when great floods and earthquakes occur render a large annual outlay inevitable. The road from Kohāla to Bāramūla alone

cost 22 lakhs to construct, and the road from Kashmīr to Gilgit cost, in the first instance, 15 lakhs. In 1901 the construction of a cart-road from Jammu to Udhampur was sanctioned. In 1905–6 the utilization of the Jhelum river for a great electric power scheme was taken in hand, and 4·6 lakhs was spent on it. The State Engineer is usually an officer lent by the British Government; and the State is divided into eight divisions, known as Kashmīr, Jammu, the Jhelum valley, Gilgit, Udhampur cart-road, Palace, Jhelum power, and Jammu irrigation.

Army. The expenditure on the army is heavy, amounting to nearly 14 lakhs in 1905–6, but the administration is sound and economical, and there is considerable efficiency. The State has splendid materials for an army, as the Dogrās are, in the opinion of competent authorities, second to none in martial qualities. The commander-in-chief up to the year 1900 was assisted by a British officer as military adviser. The first military adviser was Colonel (afterwards Sir) Neville Chamberlain, to whose energy and tact the State owes its present efficient and well-equipped force. The army consists of two mountain batteries, one horse artillery and one garrison battery, one squadron Kashmīr Lancers, one troop body-guard cavalry, 7 regiments of infantry, and 4 companies of sappers and miners, with a total strength of 6,283. Out of this the State maintains a force of 3,370 Imperial Service troops, the remainder being called regular troops. Jammu, the winter capital, has a strong garrison. Imperial Service troops are stationed at Satwāri cantonment, about 5 miles from Jammu, on the opposite bank of the Tāwi river. Two regiments of regular infantry and a garrison battery are stationed at Srīnagar, and small detachments of infantry are detailed from this garrison for Bandipura, Leh, Skārdu, Padar, and various other posts. The troops in Gilgit, the northernmost part of the State, consist of two regiments of Imperial Service infantry, a battery of four mounted guns, and two companies of the Kashmīr sappers and miners. Detachments of infantry are supplied to the frontier posts of Gupis, Chilās, &c., and the battery is stationed at Bunji and Ruttoo. The troops at the Gilgit, Ladākh, and Skārdu frontiers are relieved biennially. The Imperial Service infantry regiments are armed with Lee-Metford rifles, and the regular regiments with Enfield-Sniders. The mountain batteries are equipped with 2·5 inch guns, and the cavalry are armed with lances and carbines. A number of forts partially armed are scattered all over the country The State army is commanded by General Rājā Sir Amar Singh, K.C.S.I., younger brother of the Mahārājā.

Serious crime is rare, and the force of regular police is comparatively small. It includes 3 assistant superintendents, 9 inspectors, 297 subordinate officers, and 1,213 constables, costing about 2·2 lakhs annually. The force is controlled by two Superintendents for the chief provinces of Jammu and Kashmīr. Police duties in the villages are performed by the *chaukīdārs*, who are generally Dums in the Jammu province, and are paid by the villagers. The responsibility of the headman for reporting crime is insisted on. A training school for regular police is maintained, and the system of identifying convicts by thumb impressions has been introduced. In 1904–5, only 2,076 cognizable cases were reported, of which 640, or 30 per cent., ended in conviction. Police.

Central jails are maintained at Jammu and at Srīnagar, and seven small jails in outlying places. Both the Central jails are usually overcrowded, the daily average number of prisoners in 1904–5 being 543. The expenditure in the same year was Rs. 47,000 on the Central jails, and Rs. 3,600 on the others; and in 1905–6 a total of Rs. 54,000. Convicts are employed in printing, paper-making, and other minor industries in the Srīnagar jail, and in printing, weaving, and manufacturing industries at Jammu. The receipts for jail manufactures in 1905–6 were Rs. 18,000. Jails.

The Census of 1901 showed how little attention was formerly paid to education. In that year only 2 per cent. of the population could read and write. Among males the proportion rises to 3·8 per cent., while among the total female population only 1,260 were literate. Hindus appear to be much better educated than Muhammadans. In 1900–1 the State maintained 87 schools, attended by 6,197 boys. By 1905–6 the number of State schools had risen to 154, including two high schools, a normal school, 7 Anglo-vernacular and 12 vernacular middle schools, and 133 primary schools. Besides these, 3 girls' schools are maintained by the State at Srīnagar; and there are one aided girls' school at Jammu, two aided high schools and an aided middle school at Srīnagar, and an aided middle school at Jammu. Sanskrit schools attached to the State high schools, one at Jammu and the other at Srīnagar, teach up to the Shāstri standard. The total number of pupils in all the schools was 11,460. The department is under the control of the foreign minister, who is aided by an inspector and two assistant inspectors of schools. There being no State college, 17 scholarships are annually granted by the Darbār to students for prosecuting their studies at colleges at Lahore. Two scholar- Education.

ships of Rs. 4,000 each have also been sanctioned for training State subjects abroad in useful arts, &c. Ten stipends of the value of Rs. 8 a month are granted in the Srīnagar normal school, and thirteen of the value of Rs. 1,944 are awarded to students sent up for training in the normal school and training college at Lahore, while two teachers are annually sent to the latter on the full pay of their appointments. The total expenditure on education in 1905–6 was 1·03 lakhs, compared with only Rs. 45,000 in 1900–1.

An Arts college was opened at Srīnagar in 1905 by the trustees of the Central Hindu College, Benares, in connexion with the Hindu high school, and the Mahārājā has sanctioned a grant-in-aid of Rs. 15,600 per annum for the college and school from the year 1906.

Medical. The State maintains at Srīnagar two hospitals, two dispensaries with accommodation for in-patients, and a leper asylum, and at Jammu two hospitals for the civil population, besides military hospitals at Jammu and at Satwāri cantonment. In 1904–5, besides these, forty-three dispensaries were maintained in the State. Two chief medical officers are in charge of the Jammu and Kashmīr provinces, and the Agency Surgeon supervises work in Gilgit. The Medical department of the State is under the control of a Superintending Surgeon. In 1904–5 the total number of patients treated was 401,120, of whom 4,338 were in-patients, and 11,830 operations were performed. The expenditure was 1·5 lakhs. In addition to the State institutions, valuable work is being done by the medical mission, which has a large hospital at Srīnagar and a hospital at Anantnāg. The leper asylum referred to above is also managed by them for the Darbār.

Vaccination. The staff for vaccination consists of eighteen men, who work in the province of Jammu in winter, and in that of Kashmīr in summer. Vaccination is not compulsory, but a good deal of work is done by the exercise of tact and moral persuasion. In 1904–5 the number of persons successfully vaccinated in both provinces was 33,784, while 4,200 vaccinations were also carried out in Gilgit. The people of Ghizar, Yāsīn, Ashkuman, and Chilās districts formerly refused vaccination, but are now accepting it. The total expenditure in 1905–6 was Rs. 5,685. Inoculation is practised by the people in the frontier districts, but not elsewhere.

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TABLE I.—Temperature, Kashmīr

Station.	Height of Observatory above sea-level.	Average temperature (in degrees F.) for twenty-two years ending with 1905 in							
		January.		May.		July.		November.	
		Mean.	Diurnal range.	Mean.	Diurnal range.	Mean.	Diurnal range.	Mean.	Diurnal range.
Srīnagar * . . .	5,204	33·2	14·2	63·9	24·0	74·3	20·8	46·4	28·1
Leh	11,503	19·1	20·4	49·9	26·3	63·3	26·9	34·0	26·3

* The figures here are for fourteen to fifteen years only.
NOTE.—The diurnal range is the average difference between the maximum and minimum temperature of each day.

TABLE II.—Rainfall, Kashmīr

Station.	Average rainfall (in inches) for twenty-nine years ending with 1905 in												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total of year.
Srīnagar * . .	3·13	2·24	3·58	3·29	2·93	1·67	3·03	2·26	1·64	1·12	0·47	1·34	26·70
Leh . . .	0·33	0·32	0·30	0·20	0·21	0·16	0·47	0·47	0·21	0·18	0·03	0·17	3·05

* The figures here are for fourteen to fifteen years only.

TABLE II.—Distribution of Population, Kashmīr, in 1901

Districts.	Area in square miles.	Number of towns.	Number of villages.	Total Population.			Urban Population.			Mean density per square mile.‡
				Persons.	Males.	Females.	Persons.	Males.	Females.	
Jammu	...	1	1,190	344,018	185,722	158,296	36,130	22,221	13,909	267
Udhampur	...	...	1,055	284,048	151,425	132,623	...	...	...	184
Bhimber	...	...	1,019	400,229	210,075	190,154	...	...	...	233
Jasrota	...	...	584	154,213	82,391	71,822	...	...	...	193
Pūnch, Bhadarwāh } *Jāgīrs*	...	...	624	338,799	178,179	160,620	...	...	...	...
Total, Jammu Province	5,223 *	1	4,472	1,521,307	807,792	713,515	36,130	22,221	13,909	...
Khas	...	1	2,919	989,196	526,158	463,038	122,618	65,542	57,076	164
Muzaffarābād	...	...	827	168,198	90,729	77,469	...	...	...	64
Total, Kashmīr Province	7,922 †	1	3,746	1,157,394	616,887	540,507	122,618	65,542	57,076	131
Ladākh	...	...	464	165,992	83,600	82,392	...	...	...	419
Gilgit	...	...	264	60,885	33,778	27,107	...	...	...	1,295
Total, Frontier districts	443 †	...	728	226,877	117,378	109,499	...	...	...	512
Total, State	80,900	2	8,946	2,905,578	1,542,057	1,363,521	158,748	87,763	70,985	36 §

* Of this area, 2,266 square miles are assessed and 2,957 estimated. It does not include the *Jāgīrs*.
† Assessed area only.
‡ Calculated on area actually cultivated.
§ Calculated on total area.

TABLE IV

PRINCIPAL SOURCES OF REVENUE, KASHMĪR

(In thousands of rupees)

	1895-6.	1900-1.	1905-6.
Opening balance	29,53	41,12	38,26
Land revenue	35,73	38,78	38,91
Customs and octroi	4,22	7,61	9,18
Grazing fees	2,37	3,33	4,84
Excise	37	50	1,37
Receipts from State property in India	1,91	42	36
Stamps	1,37	1,75	2,22
Courts of law	27	30	32
Jails	5	7	19
Post Office	11	...	...
Telegraphs	3	6	8
Scientific and minor departments	7,71	2,70	2,22
Sericulture	7	2,67	14,02
Interest	81	1,49	2,98
Forests	8,09	8,83	13,01
Military	25	29	35
Public works	14	48	58
Miscellaneous	3,90	5,28	2,36
Total	67,40	74,56	92,99
Debt and remittance	1,42,70	1,77,04	3,61,73
GRAND TOTAL	2,39,63	2,92,72	4,92,98

TABLE V

PRINCIPAL ITEMS OF EXPENDITURE, KASHMĪR

(In thousands of rupees)

	1895-6.	1900-1.	1905-6.
Land revenue	3,15	4,77	6,12
Customs	...	75	1,30
Forests	2,55	2,95	3,98
Post Office	16	...	...
Telegraphs	77	26	29
Privy purse and courts	9,24	8,46	10,87
General administration	1,78	2,49	3,27
Courts of law	68	88	1,22
Jails	32	47	54
Police	1,48	1,97	2,05
Education	37	50	1,05
Medical	82	1,39	1,57
Political	1,74	2,36	9,38
Scientific and minor departments	72	1,05	2,11
Sericulture	15	4,63	7,53
Pensions and gratuities	1,10	1,34	1,32
Stationery and printing	20	64	48
Stables, &c.	1,01	1,54	1,47
Refunds	36	25	54
Military	13,44	11,69	13,82
Public works	12,62	15,80	30,80
Miscellaneous	8,57	1,33	1,71
Total	61,23	65,52	1,01,42
Debt and remittance	1,54,27	1,81,52	3,57,03
Total	2,15,50	2,47,04	4,58,45
Closing balance	24,13	45,68	34,53
GRAND TOTAL	2,39,63	2,92,72	4,92,98

Indus (Sanskrit, *Sindhu*; Greek, *Sinthos*; Latin, *Sindus*).—The great river of North-western India, which rises in Tibet, and then flows through Kashmīr, the North-West Frontier Province, and the Punjab, and after a final course through Sind falls into the Arabian Sea in 23° 58′ N. and 67° 30′ E. The drainage basin of the Indus is estimated at 372,700 square miles, and its total length at a little over 1,800 miles. The towns of importance on or near its banks in British territory are, beginning from the south: Karāchi, Kotri, Hyderābād, Sehwān, Sukkur, Rohri, Mithankot, Dera Ghāzi Khān, Dera Ismail Khān, Miānwāli, Kālābāgh, Khushālgarh, and Attock.

Course in Tibet and Kashmīr.

The first section of the course of the Indus lies outside British territory, and must be briefly dealt with here. The river rises, as above stated, in Tibet (32° N. and 81° E.), behind the great mountain wall of the Himālayas, which forms the northern boundary of India; it is said to spring from the north side of the sacred Kailās mountain (22,000 feet), the Elysium of ancient Sanskrit literature. Issuing from the ring of lofty mountains about Lake Mānasarowar, where also the Sutlej, the Brahmaputra, and the Kauriālā have their rise, it flows north-west for about 160 miles under the name of Singh-kā-bāb, until it receives the Ghar river on its south-western bank. A short distance below the junction of the Ghar, the river, which is supposed to have an elevation of 17,000 feet at its source, enters the south-eastern corner of Kashmīr at an elevation of 13,800 feet, flowing slowly over a long flat of alluvium. Following a steady north-by-west course, it skirts Leh at a height of 10,500 feet and drops to 8,000 feet in Baltistān, just before it receives the waters of the Shyok river. At Leh it is joined by the Zāskār river, and is crossed by the great trade route into Central Asia via the Karakoram Pass. Early travellers, like Dr. Thomson and Mr. Blane, have described this portion of the Indus. The former found numerous hot springs, some of them with a temperature of 174° and exhaling a sulphurous gas. Still flowing north, but more westerly, through Kashmīr territory, it passes near Skārdu in Baltistān, and reaches the Haramosh mountain (24,300 feet) in about 34° 50′ N. and 74° 30′ E. Here it takes a turn southwards at an acute angle, and passing beneath the Hattu Pīr, at an elevation of 4,000 feet, enters Kohistān in the Dīr, Swāt, and Chitrāl Agency near Gur. The steepness of its fall varies, now becoming greater, now less. This inequality of slope has been connected with the changes that occurred in the glacial period from the damming of the river

by great glaciers and the formation of great thicknesses of lacustrine deposit. The Indus has been the cause of serious and disastrous floods; the rapid stream dashes down gorges and wild mountain valleys, and in its lower and more level course it is swept by terrific blasts. Even in summer, when it is said to dwindle down to a fordable depth during the night, it may during the course of the day swell into an impassable torrent from the melting of the snows on the adjoining heights. Opposite Skārdo in Baltistān it is, even in the depth of winter, a grand stream, often more than 500 feet wide and 9 or 10 feet in depth. After leaving Gur, it flows for about 120 miles south-west through the wilds of Kohistān, until it enters the North-West Frontier Province (35° 25′ N. and 73° 51′ E.), near Darband, at the western base of the Mahāban mountain. The only point to which special allusion can be made in the long section of its course beyond British territory is the wonderful gorge by which the river bursts through the western ranges of the Himālayas. This gorge is near Skārdo, and is said to be 14,000 feet in sheer descent.

In the Frontier Province and the Punjab.

The Indus, on entering the Hazāra District of the North-West Frontier Province, 812 miles from its source, is about 100 yards wide in August, navigable by rafts, but of no great depth, and studded with sandbanks and islands. It is fordable in many places during the cold season; but floods or freshes are sudden, and Ranjīt Singh is said to have lost a force, variously stated at from 1,200 to 7,000 horsemen, in crossing the river. Even the large and solid ferry-boats which ply upon it are sometimes swept away. Almost opposite Attock it receives the KĀBUL river, which brings down the waters of Afghānistān. The two rivers have about an equal volume, both are very swift, and broken up with rocks. Their junction during floods is the scene of a wild confusion of waters. The Kābul river is navigable for about 40 miles above the confluence, but a rapid just above it renders the Indus impracticable. Attock, the limit of the upward navigation, forms the first important point on the river within British territory. By this time it has flowed upwards of 860 miles, or nearly one-half of its total length, its further course to the sea being about 940 miles. It has fallen from its elevation of 17,000 feet at its source in Tibet to about 2,000 feet, the height of Attock being 2,079 feet. In the hot season, opposite the fort, its velocity is 13 miles an hour; and in the cold season, 5 to 7 miles. The rise of ordinary floods is from 5 to 7 feet in twenty-four hours only, and the maximum is 50

feet above cold-season level. Its width varies greatly with the season—at one time being more than 250 yards, at another less than 100. The Indus is crossed at Attock by the railway bridge opened in 1883, a bridge of boats, and a ferry. The main trunk road to Peshāwar also crosses the river by a subway on the railway bridge.

After leaving Attock, the Indus flows almost due south, forming the western boundary of the Punjab, parallel to the Sulaimān Hills. The great north road from Sind to Bannu runs for several hundred miles parallel with its western bank; and from Mahmūd Kot to Attock the Sind-Sāgar, Māri, and Māri-Attock branches of the North-Western Railway run along its eastern bank. Twelve miles below Attock the Indus receives the waters of the Haroh, a rapid stream which, rising in the Murree hills as the Dhānd, meets the Karrāl coming down from the Mochpuri peak, and rushes through steep banks for a total course of 90 miles. At Makhad, the Sohān brings in all the drainage of Rāwalpindi and Jhelum Districts that is not taken by the Jhelum river. The Indus forms the eastern border of the two frontier Districts of Dera Ismail Khān in the North-West Frontier Province and Dera Ghāzi Khān in the Punjab, with the Sind-Sāgar Doāb on its eastern bank, and only a narrow strip of British territory between it and the hill tribes of the Sulaimān ranges on the west. Just above Mithankot, in the south of Dera Ghāzi Khān District, it receives the accumulated waters of the Punjab. Between the Indus and the JUMNA flow the five great streams from which the Punjab (Panj-āb, literally 'The five waters') takes its name. These are the JHELUM, the CHENĀB, the RĀVI, the BEĀS, and the SUTLEJ. After various junctions these unite to form the PANJNAD river, literally 'The five streams,' which marks for a short space the boundary between British territory and the Bahāwalpur State, and unites with the Indus near Mithankot, about 490 miles from the sea. In the cold season the breadth of the Indus above the confluence is about 600 yards, its velocity 5 miles an hour, its depth from 12 to 15 feet, and its estimated discharge 10,000 to 25,000 cubic feet per second. During flood-times the breadth sometimes increases to 5 miles, and the discharge to 1,000,000 cubic feet per second. The dimensions of the Panjnad above the point of junction are somewhat less than those of the Indus during the cold season, but during the monsoon floods they are almost as large as the Indus. The whole course of the Indus through the Punjab is broken by islands and sandbanks, but beautiful

scenery is afforded along its banks, which abound with the date, acacia, pomegranate, and other trees.

In Sind.

Mithankot has an elevation of only 258 feet above the level of the sea. From Mithankot the Indus forms the boundary between the Punjab and the Bahāwalpur State, until, near Kashmor, it enters Sind in 28° 26′ N. and 69° 47′ E. From Bukkur (in Sind) to the sea the river is known familiarly among the Sindīs as the 'Daryā' (the river). Pliny writes of *Indus incolis Sindus appellatus.* It first touches Sind close to Kashmor town in the Upper Sind Frontier District, separating it from the Bahāwalpur State and Sukkur District. Formerly in years of high inundation its floods reached Jacobābād, finding their way thence into the Manchhar Lake. To prevent this, the Kashmor embankment, which is the largest in Sind, was erected. Leaving Kashmor the river crosses Sukkur District, divides Lārkāna and Karāchi from the Khairpur State and Hyderābād District, finally emptying itself by many mouths into the Arabian Sea near Karāchi, after a south-western course of 450 miles through Sind. It ranges in width from 480 to 1,600 yards, the average during the low season being 680 yards. During the floods it is in places more than a mile wide. Its depth varies from 4 to 24 feet. The water, derived from the snows of the Himālayas, is of a dirty brown colour, and slightly charged with saline ingredients, carbonate of soda, and nitrate of potash. Its velocity in the freshes averages 8 miles per hour, at ordinary times 4 miles. The discharge per second varies between a minimum of 19,000 and a maximum of 820,000 cubic feet. On an average the temperature of the water is 10° lower than that of the air. Near the station of Sukkur and again at Kotri the river is spanned by a fine railway bridge. The Sukkur bridge was opened in 1889, and resembles the Forth Bridge in having a central girder with a span of 200 feet, supported at the ends of two cantilever arms, each 310 feet long. The Indus begins to rise in March, attains its maximum depth and width in August, and subsides in September. The maximum rise registered at Kotri, near Hyderābād, was 22 feet 7 inches in 1894. There are many other gauges on the river.

The Indus delta.

The delta of the Indus covers an area of about 3,000 square miles, and extends along the coast-line for 125 miles. It is almost a perfect level, and nearly destitute of timber, the tamarisk and mangrove alone supplying fuel. In these respects the delta is similar to that of the Nile, but dissimilar from the Ganges delta. The marshy portions contain good

pasturage, and rice grows luxuriantly wherever cultivation is possible; but the soil generally is not fertile, being a mixture of sand and clay. In the Shāhbandar *tāluka* are immense deposits of salt. The climate of the delta is cool and bracing in the winter months, hot in the summer, and during the floods most unhealthy.

Jhelum (*Jehlam*).—River in Kashmīr and the Punjab, being the most westerly of the five rivers from which the Punjab derives its name. It was known to the Muhammadan historians as the Bihat, Wihat or Bihatab, corruptions of its Sanskrit name *Vitastā* (which Alexander's historians graecized into *Hydaspes*, but Ptolemy more correctly as *Bidaspes*), while its modern Kashmīri name is *Veth*. It may be said to have its source in a noble spring of deep-blue water, which issues from the bottom of a high scarp of a mountain spur. The spring is known as Vernāg; and at Khānabal, 15 miles north, its waters join the streams of Adpat, Bring, and Sandran, and form the starting-point of navigation. The river is navigable without a single lock from Khānabal to Bāramūla, 102 miles. In its course to the Wular Lake, which may be regarded as a delta of the river, the fall is 165 feet in the first 30 miles and 55 feet in the next 24 miles. From the Wular Lake to Bāramūla the fall is very slight.

The Jhelum river has many tributaries. On its right bank it receives the Liddar or Lambodri, which comes down from the everlasting snows overhanging the head of the Liddar valley, and from the mountain lake of Tarsar. Below Srīnagar at Shādīpur—the place of the marriage of the two rivers—the Sind river joins the Jhelum; and beyond the Wular Lake the Pohru stream, which drains the Lolāb valley, merges in the great river. On the left bank the chief tributaries are the Vishav, the Rembiara, the Ramshi, the Dudgangā, the Suknāg, and the Ferozepura. The Dudgangā joins the Jhelum at the lower end of Srīnagar city.

Below Bāramūla (5,000 feet) the placid Jhelum leaves the fertile banks of the valley, and rushes headlong down a deep gorge between lofty mountains of the Kazināg range on the north and an extension of the Pīr Panjāl on the south to Kohāla, 2,000 feet. At Muzaffarābād the Kishangangā river joins the Jhelum on its right bank, while a few miles lower down, and on the same side, the Kunhār river, which drains the Hazāra country, adds no inconsiderable volume of water. Between Khānabal and Bāramūla there are many bridges, but between Bāramūla and Domel, where the Kishangangā river

joins the Jhelum, the bridges are scarce and primitive. Much of the internal commerce of Kashmīr depends on the Jhelum. An account of the various descriptions of boats used will be found in the article on SRĪNAGAR.

Below its junction with the Kishangangā the Jhelum forms the boundary between the Kashmīr State and the British Districts of Hazāra and Rāwalpindi, flowing in a narrow rocky bed, shut in by mountains on either side. Numerous rapids here render navigation impossible, though large quantities of timber are floated down from Kashmīr. A handsome suspension bridge at Kohāla, in Rāwalpindi District, connects Kashmīr with British territory. Below Dangalli, 40 miles east of Rāwalpindi, the Jhelum becomes navigable. Passing into Jhelum District, it skirts the outlying spurs of the Salt Range, receiving the waters of the Kahan, and finally debouches upon the plains a little above the town of Jhelum, about 250 miles from its source. Below Jhelum, inundation of the lowlands begins to be possible, and sandy islands stud the wide bed of the stream. The Bunhā, in the rains a roaring torrent which sometimes spreads over a mile of country, joins the Jhelum at Dārāpur. After a south-westerly course of more than 100 miles, during which the river divides the District of Jhelum from Gujrāt and Shāhpur, it enters the latter District entirely, and trends thenceforth more directly southward. The width in this portion of its course averages 800 yards in flood, dwindling during the winter months to less than half that size. Sudden freshes occur after heavy rains, and cause frequent inundations over the lowlands, greatly increasing the productive power of the soil. The Jhelum next enters the District of Jhang, where it preserves the same general characteristics, but with a wider valley, bounded by the high uplands known as the Bār. It finally joins the Chenāb at Trimmu, in 31° 11′ N. and 72° 12′ E., 10 miles to the south of Maghiāna, after a total course of not less than 450 miles, of which about 200 lie within British territory. The current in the plains has an average rate of 4 miles per hour. The wedge of land between the Jhelum and the Chenāb is known as the Chaj Doāb; while the tract stretching westward to the Indus bears the name of the Sind Sāgar Doāb.

The principal towns upon the Jhelum are Kashmīr or Srīnagar, Jhelum, Pind Dādan Khān, Miāni, Bhera, and Khushāb. According to General Cunningham, the point where Alexander crossed the Hydaspes may be identified with Jalālpur in Jhelum District; while nearly opposite, on the

Gujrāt bank, stands the modern battle-field of Chiliānwāla. Other writers hold that the passage was effected near Jhelum town. A bridge of boats crosses the river at Khushāb. The permanent railway bridge of the North-Western Railway also crosses it at the town of Jhelum, and the Sind Sāgar line at Haranpur. The Lower Jhelum Canal takes off at Mong Rasūl in Gujrāt District.

Chenāb (the *Acesines* of the Greeks and *Asikni* of the Vedas).—River in Kashmīr and the Punjab, being one of the five streams from which the latter Province derives its name. It rises in the Himālayan canton of Lāhul in the Punjab in two streams: the Chandra which issues from a large snow-bed on the south-east side of the Bāra Lācha at a height of 16,221 feet, and the Bhāga which rises on the north-west slopes of the pass. The Chandra, after flowing south-east for 55 miles, sweeps round the base of the mid-Himālayas and joins the Bhāga at Tandi, after a total course of 115 miles. The course of the Bhāga to Tandi is only 65 miles, its average fall being 125 feet per mile. The united stream, now known as the Chandra-Bhāga or Chenāb, flows through the Pāngi valley in the Chamba State and then enters the Padar district of Kashmīr at an elevation of 6,000 feet. Thence for 180 miles it flows between steep cliffs of the high mountains, and then for 25 miles through the lower hills to Akhnūr, where it becomes navigable. There are three remarkable bends in the Chenāb. Where it reaches Kishtwār from a north-west course it suddenly twists due south; at Jangalwār it tacks from south to west; and at Arnas it leaves its westerly course and flows due south past Riāsi to Akhnūr. At each of these turns the Chenāb is joined by streams of considerable size, and at every change of course the river seems to cut through the mountain range along which it had been flowing.

The chief tributaries in its passage through Kishtwār, Bhadrawār, and Jammu are the Uniar and Shudi, and the Bhutna and Māru Wardwan rivers. Between Kishtwār and Akhnūr it receives the waters of the Golan Lar and Lidar Kol, and the Bichlari and Ans, and between Riāsi and the western boundary of Jammu it is joined by the Tāwi. There are several bridges, two of which on the routes from Jammu to Kashmīr, and from Kashmīr to Kishtwār respectively, are of a superior description. The rest are of the primitive *jhūla* type—three ropes stretched across the stream in the form of a triangle.

The Chenāb re-enters the Punjab at Khairi Rīhāl in Siālkot

District. The Tāwi joins it almost at once, and the first place of importance in British territory is Wazīrābād, where the Alexandra Bridge carries the North-Western Railway across the river. Throughout its course in the plains the river flows in a wide and shifting bed of sand. A few miles south-west of Wazīrābād the main branch of the Lower Chenāb Canal takes off at Khānki; and thence the river flows on greatly diminished in bulk, dividing the Chaj Doāb on the west from the Rechna Doāb on the east until the Jhelum joins it in Jhang District at Trimmu. Thence the two rivers flow under the name of the Chenāb, till joined by the Rāvi near Sidhu and the Sutlej at Madwāla. The North-Western Railway crosses it again at Sher Shāh. Thence the united stream flows on under the name of the Panjnad, to join the Indus at Mithankot. Small boats can navigate the Chenāb in the plains all the year round, but there is little traffic above Chiniot.

There is evidence to show that the Chenāb flowed to the east of Multān as late as A. D. 1245. The Beās then occupied its old bed passing Dipālpur; and the Jhelum, Chenāb, and Rāvi met north-east of Multān, and flowing to the east of that town joined the Beās 28 miles south of it and east of Uch. Thus Multān and Uch both lay in the Sind-Sāgar Doāb. By 1397 the Chenāb had altered its course westward and was flowing to the west of Multān, as it still does. The part of the river which divides the modern District of Gujrāt from Gujrānwāla was known to the Muhammadan historians as the Sūdharā (SODHRA), from the town of that name on its left bank.

Wular Lake.—Lake in Kashmīr State, lying between 34° 16′ and 34° 26′ N. and 74° 33′ and 74° 42′ E., at an elevation of 5,180 feet above sea-level. The lake has an area of 12½ square miles, but in years of flood, such as 1893, it may cover 103 square miles. The Wular has a bad reputation among the boatmen of Kashmīr; for when the winds come down the mountain gorges, the quiet surface of the lake changes into a sea of rolling waves, most dangerous to the flat-bottomed craft of the country. The name is supposed to be a corruption of *Ullola*, Sanskrit for 'turbulent' or '[the lake] with high, going water.' The ancient name is Mahāpadmasaras, derived from the Nāga Mahāpadma, who is located in the lake as its tutelary deity. The Bohnar, Madmati, and Erin streams flow into the lake from the high amphitheatre of mountains on the north, while from the south the Jhelum enters through marshes and peaty meadows. In the north-east corner is an island made by king Zain-ul-ābidīn as a storm refuge for boats, and on the

western shore is the scarp of Watlab on which stands the celebrated shrine of Shukr-ud-dīn. The chief products of the lake are fish, wild-fowl, and the *singhāra* nut.

Dal Lake.—Lake in Kashmīr State, situated close to Srīnagar, measuring about 4 miles by 2½, and one of the most beautiful spots in the world. The mountain ridges, which are reflected in its waters as in a mirror, are grand and varied, the trees and vegetation on the shores of the Dal being of exquisite beauty. In the spring the fresh green tints of the trees and the mountain sides are refreshing to the eye, but it is perhaps in October that the colours of the lake are most charming. The willows change from green to silver grey and delicate russet, with a red tone on the stems and branches, casting colours on the clear water of the lake, which contrast most beautifully with the rich olives and yellow greens of the floating masses of water-weed. The *chinārs* are warm with crimson, and the poplars stand up like golden poles to the sky. On the mountain sides the trees are red and gold, and the scene is one of unequalled loveliness. Looking towards the city from the lake the famous hill, the Takht-i-Sulaimān, stands on the left; and to the right the hill of Harī Parbat, with its picturesque fort full of recollections of the grandeur of past times. Between these hills lies Srīnagar, and away to the west are the snow-capped mountains of Kashmīr. The Dal is clear, and the people say that the shawls of Kashmīr owed much of their excellence to being washed in its soft waters. Nature has done much for the lake, but the Mughal emperors exerted themselves to enhance its natural beauties; and though the terraced gardens of Jahāngīr and Shāh Jahān, with the prim rows of cypress through which formal cascades tumble down to the edge of the Dal, may not please the European landscape-gardener, the magnificent plane-trees which the great Mughals bequeathed to posterity have added a distinctive charm. The park of plane-trees known as the Nasīm Bāgh, 'the garden of breezes,' which was planted in Akbar's time, is the most beautiful of all. Nothing is perhaps more striking than the ruined Pari Mahal standing grandly on a spur of the Zebanwan mountain, which was built by Dārā Shikoh for his tutor, Mullā Shāh, whose tomb is at Mulshāhi Bāgh, near the entrance of the Sind valley. There are two small islands on the lake, known as the Sona Lanka or 'golden isle' and the Rūpa Lanka or 'silver isle.' The original of the name Dal is uncertain. One authority states that the name signifies in the Kashmīri language 'lake,' and that there is a Tibetan word *Dal* which means 'still.' In the chronicle of

Srīvara the lake is called Dala. The cultivation on the lake is peculiar and interesting.

Ladākh.—The most westerly province of the high mountainous land spoken of as Tibet is called Ladākh or Ladāg. It is now politically a division of the Kashmīr State, lying between the Himālayas and the Kuenlun mountains, and between Baltistān and Chinese Tibet. The Karakoram range forms the northern boundary as far east as the Karakoram pass. The country is known to educated Tibetans by other names—Mangyāl, Nearis, Māryul.

Ladākh is one of the most elevated regions of the earth, its sparse cultivation ranging from 9,000 to 14,000 feet. The scanty population is found in scattered and secluded valleys, where along the river banks and on alluvial plateaux crops are raised by irrigation. Central Ladākh, which lies in the Indus valley, is the most important division of the country. To the north is Nubra, consisting of the valley of the Nubra river and a portion of the valley of the Shyok. The great floods of the Indus, caused by the descent of glaciers across its stream and that of the Shyok, and the consequent damming back of the Nubra river have caused great destruction to riverain lands, once cultivated but now wastes of granitic sand. Here the fields are fenced to guard the crops from the ponies of traders on their way to Yārkand. The south is the Rupshu country with its great lakes. Rupshu Lake covers an area of 60 to 70 square miles. Tsomoriri is 15 miles in length, and lies at an elevation of 14,900 feet. The lakes are land-locked and brackish. East of Central Ladākh is the lake of Pangkong, and in its neighbourhood crops of beardless barley and peas are raised at an elevation of 14,000 feet. South-west is the country of Zāskār, with a very severe climate chilled by the lofty snow ranges. Physical aspects.

The flora of Ladākh is scanty, and timber and fuel are the most pressing wants of the people. The *burtse* (*Eurotia*) is a low-growing bush which gives a fair fuel, and in the high valleys the *dama*, a kind of furze, is burnt. On some hill-sides the pencil cedar (*padam*) occurs; and in occasional ravines the wild willow is found. Arboriculture used to be discountenanced under the Gialpos, on the ground that trees deprived the land of fertility. Botany.

On the plains up to 17,000 feet wild asses or *kiang* (*Equus hemionus*), antelope (*Pantholops hodgsoni*), wild yak (*Bos grunniens*), ibex (*Capra sibirica*), and several kinds of wild sheep (*Ovis hodgsoni*, *O. vignei*, and *O. nahura*) are found; and Fauna.

the higher hill slopes up to 19,000 feet contain hares and marmots, and the beautiful snow leopard (*Felis uncia*) and the lynx (*F. lynx*). Knight, in *Where Three Empires meet*, remarks:—

> 'Not only man, but also all creatures under his domination —horses, sheep, goats, fowls—are diminutive here, whereas the wild animals on the high mountains are of gigantic size.'

Drew counted as many as 300 *kiang* in a day's march. In outward appearance the *kiang* is like a mule, brown in colour with white under the belly, a dark stripe down the back, but no cross on the shoulder. One *kiang* shot by Drew was 54 inches in height. The flesh is rather like beef. They are common on the Changchenmo, and are met with in many parts of Ladākh, where their curiosity often disconcerts sportsmen by alarming game worth shooting. A curious fact in the fauna of Ladākh is the absence of birds in the higher parts of the country. An occasional raven is the only bird to be seen.

Climate. The climate is very dry and healthy. Rainfall is extremely slight, but fine dry flaked snow is frequent, and sometimes the fall is heavy. There is a remarkable absence of thunder and lightning. The air is invigorating, and all travellers notice the extraordinary extremes of cold and heat. In Rupshu the thermometer falls as low as 9° in September. The minimum temperature of the month is 23·5°, and the mean temperature 43°. As Knight remarks:—

> 'So thin and devoid of moisture is the atmosphere that the variations of temperature are extreme, and rocks exposed to the sun's rays may be too hot to lay the hand upon, at the same time that it is freezing in the shade. To be suffering from heat on one side of one's body, while painfully cold on the other, is no uncommon sensation here.'

History. The history of Ladākh, until its conquest by Rājā Gulāb Singh in the first half of the nineteenth century, is intimately connected with Tibet, with which country it still holds commercial and religious relations. Stories are told of invasions in the seventeenth century by the neighbouring Baltis, sometimes successful, sometimes repulsed. About the end of the seventeenth century the Ladākhis called in the aid of the governor of Kashmīr to repel the Sokpos, a Mughal tribe. Help was promptly given, and the Sokpos were driven out of Ladākh, after which it paid tribute to Kashmīr. Prior to annexation by the Dogrās, the government of the country was a mild form of monarchy. The ruler was called Gialpo or king, but the real power rested with the minister or Kahlon. The only

check on the latter was the widespread authority of the monasteries. The chief of these is Himis Gompa, on the left bank of the Indus, 18 miles above Leh. This monastery, which contains 400 to 800 monks and nuns, stands at the head of a wild glen and covers a considerable space of ground. An important festival, called the Himis Tsheshū, is held annually on the tenth day of the fifth month (about June 7), when the whole country-side flock to the monastery and witness the weird devil-dance of the Buddhist Lāmas. A constant spectator is the Gialpo of Ladākh. The monastery is believed to contain great wealth, and the treasure is kept under guard in order to prevent its being carried over the border to Lhāsa. The chief shrine is faced entirely with silver plate. Its treasure-house has small vases filled with pearls, turquoises, and rubies, said to be of value.

The people.

Leh (population, 2,079) is the only place of importance in Ladākh, and there are besides 463 villages. With the exception of one village of Shiah Musalmāns in Chhachkot, and of the Arguns or half-breeds, practically the whole population, excluding the town of Leh, is Buddhist. The people style themselves Bhots. According to the last Census, there are now 30,216 Buddhists living in Ladākh. They have the Mongolian cast of features, and are strong and well made, ugly, but cheerful and good-tempered. If they do quarrel over their barley beer (*chang*), no bad blood remains afterwards. They are very truthful and honest, and it is said that in court the accused or defendant will almost invariably admit his guilt or acknowledge the justice of the claim.

There are five main castes (*riks*): the Rgrial *riks*, or ryot caste; the Trangzey *riks*, or priestly caste; the Rjey *riks*, or high officials; the Hmang *riks*, or lower officials and agricultural classes; and the Tolbay *riks*, or artificers and musicians. This last caste, also known as Bem, is considered inferior.

The Ladākhis may be divided into the Champas or nomads, who follow pastoral pursuits on the upland valleys, too high for cultivation; and the Ladākhis proper, who have settled in the valley and the side valleys of the Indus, cultivating with great care every patch of cultivable ground. These two classes do not, as a rule, intermarry, and Champas rarely furnish recruits to the monasteries. The Ladākhis are mostly engaged in agriculture, and in spite of the smallness of their holdings they are fairly prosperous. Their great wants are fuel and timber. For fuel they use cow-dung and the bush known as *burtse*. Their only timber trees are the

scattered and scanty willows and poplars which grow along the watercourses.

There can be little doubt that the modest prosperity of the Ladākhis, in contrast to the universal poverty of Baltistān, is due to the practice of polyandry, which acts as a check on population. Whereas the Baltis, used to the extremes of temperature, are able to seek employment in hot countries, the Ladākhis would die if they were long away from their peculiar climate. In a family where there were many brothers, the younger ones could neither marry nor go abroad for their living. When the eldest son marries, he takes possession of the little estate, making some provision for his parents and unmarried sisters. The eldest son has to support the two brothers next him in age, who share his wife. The children of the marriage regard all three husbands as father. If there be more than two younger brothers, they must go out as Lāmas to a monastery, or as coolies; or, if he be fortunate, a younger son can marry an heiress, and become a Magpa. (If there is no son in a family the daughter inherits, and can choose her own husband, and dismiss him at will with a small customary present. The Magpa husband is thus always on probation, as the heiress can discard him without any excuse or ceremony of divorce.) When the eldest dies or becomes a Lāma, the next brother takes his place. But the wife, provided there are no children, can get rid of his brothers. She ties her finger by a thread to the finger of her deceased husband. The thread is broken, and she is divorced from the corpse and the surviving brothers. The woman in Ladākh has great liberty and power. She can, if she likes, add to the number of her husbands. Drew, who had a very intimate knowledge of Ladākh, thinks that polyandry has had a bad effect on the women, making them overbold and shameless. But others, who are equally entitled to form an opinion, consider this an unfair criticism.

In the town of Leh are many families of half-castes known as Arguns, the results of the union between Ladākhi women and Kashmīris, Turkī caravan-drivers, and Dogrās. The Dogrā children were known as Ghulāmzādas, and were bondmen to the State. The half-castes of Leh are no more unsatisfactory in Tibet than elsewhere, and many travellers have testified to the good qualities of the Argun.

The monasteries (*Gompa*) play an important part in the life of the Ladākhis. Nearly every village has its monastery, generally built in a high place difficult of access. At the entrance are prayer cylinders, sometimes worked by water-

power, and inside a courtyard is a lofty square chamber in which the images and instruments of worship are kept. No women may enter this chamber. Every large family sends one of its sons to the monastery as a Lāma. He goes young as a pupil, and finishes his studies at Lhāsa. In a monastery there are two head Lāmas: one attends to spiritual, the other to temporal matters. The latter is known as the *Chagzot* or *Nupa*. He looks after the revenue of the lands which have been granted to the monastery, carries on a trade of barter with the people, and supervises the alms given by the villagers. He also enters into money-lending and grain transactions with the surrounding villages. Many monasteries receive subsidies from Lhāsa. The Lāmas wear a woollen gown dyed either red or yellow. The red Lāmas predominate in Ladākh. The red sect known as Drukpas are not supposed to marry while in the priesthood. Nunneries are frequently found near the monasteries of both sects, but the *Chomos*, or nuns of the yellow sect, have a higher character than those of the red sisterhood. About a sixth of the population of Ladākh is absorbed in religious houses. The Lāmas are popular in the country, are hospitable to travellers, and are always ready to help the villagers.

Christian missions.

There are two missions at Leh—the Moravian and the Roman Catholic. The Moravian Mission is an old and excellent institution, much appreciated by the people for its charity and devotion in times of sickness. The mission has a little hospital, whither the Ladākhis, whose eyes suffer from the dustiness of the air and the confined life in the winter, flock in great numbers.

Agriculture.

The soil is sandy, and requires careful manuring, and nothing can be raised without irrigation. The chief crops are wheat, barley, beardless barley, peas, rapeseed, and beans in the spring; buckwheat, millets, and turnips in the autumn. Lucerne grass is grown for fodder. The surface soil is frequently renovated by top-dressings of earth brought from the hill-sides, and it is a common practice to sprinkle earth on the snow in order to expedite its disappearance. Fruit and wood are scarce, except in villages situated on the lower reaches of the Indus.

Beardless barley (*grim*) is the most useful crop, and can be grown at very high elevations (15,000 feet). In the middle of Ladākh the crop is secure if there be sufficient water; and in the lower villages the soil is cropped twice a year, as there is ample sunshine; but in Zāskār, which is near the high snowy

range, the crops often fail for lack of sun-warmth. Ploughing is chiefly done by the hybrid of the yak bull and the common cow, known as *zo* (male) or *zomo* (female). This animal is also used for transport purposes. Grazing is limited, and consequently the number of live-stock is not large, but there are a fair number of ponies, those from Zāskār being famous. The food of the Ladākhis is the meal of *grim*, made into a broth and drunk warm, or else into a dough and eaten with buttermilk. The Ladākhis have no prejudices, and will eat anything they can get.

Minerals. Borax is produced in Rupshu, and salt is found. About 1,436 maunds of borax are annually extracted, but the industry is profitable neither to the people nor to the State. In former days sulphur, saltpetre, and iron were manufactured in factories at Leh, but the scarcity of fuel has now rendered these industries impossible.

Manufactures. Practically the only manufacture is that of woollen cloth, known as *pattū* and *pashmīna*.

Commerce and trade. The people trade in agricultural products with the Champas of Tibet and with Skārdu. Salt is largely exported to Skārdu, and in a less degree to Kashmīr, and is exchanged for grain, apricots, tobacco, madder, and ponies. The chief commerce is the Central Asian trade between Yārkand and India.

Administration, &c. Ladākh is in the charge of a Wazīr Wazārat, who is responsible for Baltistān and the three *tahsīls* of Ladākh, Kargil, and Skārdu. His duties are light. There is little crime and scarcely any litigation. The chief cases are disputes regarding trees, or complaints that one villager has stolen the surface soil of another. No police force is maintained, but a small garrison of State troops is quartered in the fort at Leh, a building with mud walls. The Wazīr Wazārat and his establishment cost the State Rs. 9,166 per annum. One of the chief functions of the Wazīr is the supervision of the Central Asian trade which passes through Leh. For this purpose he is *ex-officio* Joint Commissioner, associated with a British officer appointed by the Indian Government. Each subdivision of Ladākh is in the charge of a *kārdār* who is a Bhot. His chief duties are to see that all reasonable assistance is rendered to the Central Asian traders and travellers. For this purpose the villages of each *kārdāri* are made responsible for furnishing baggage animals and supplies in turn, and according to the capacity of each village to the stages situated within the limits of the *kārdāri*. This is known as the *reis* system. Primary schools are maintained at Skārdu and Leh.

The land revenue system in the past has been of a very arbitrary description, the basis of assessment being the holding or the house. The size of the holding or the quality of the soil receives little consideration. Taken collectively, it has perhaps not been heavy, though the rates are considerably higher than those now applied in Baltistān; but its incidence has been unfair, oppressive to the poor, and very easy to the rich. A redistribution of the old assessments on a more equitable principle, and a summary revision where the assessments were obviously too high or unnecessarily light, have recently been carried out by a British official lent to the State. The greater part of the revenue is paid in cash, but some is taken in grain and wood, which are necessary for the supply of the Central Asian traders. The grain is stored at convenient places on the caravan route in the charge of officials who sell to the traders. But for this system trade would be hampered; for after leaving the Nubra valley and crossing the Karakoram range no fodder is available on the Yārkand road till Shāhidullah in Chinese territory is reached, and grain for feeding animals must be carried from Nubra. The strain of forced labour is heavy in Ladākh. Not only is unpaid transport taken for political missions, assistance to the trade route, &c., but several monasteries are allowed to impress unpaid labour for trading purposes. Land revenue.

Agricultural advances, chiefly seed-grain, are made for the most part not by the State, but by the monasteries, and the poorer classes are heavily in debt to the religious institutions. These are not harsh creditors. When the debtor is hopelessly involved, the monastery takes possession of half of his land for a period of three years. If the debt is not liquidated within three years, the land is restored to the debtor and the debt written off. The monastery will never sue a debtor, nor is land ever permanently alienated for debt.

Baltistān.—A tract under the Wazīr Wazārat of Ladākh, Kashmīr, also known as Little Tibet, lying approximately between 34° and 36° N. and 75° and 77° E. It is bounded on the north by the Muztāgh range and Nagar; on the east by Ladākh; on the south by Kashmīr, Wardwān, and Zāskār; and on the west by Gilgit and Astor. The tract is situated in the midst of enormous mountain ranges with peaks of 25,000 and 26,000 feet, and one above 28,000 feet, and glaciers which are the largest known out of Polar regions. The villages cling to the river valleys, the most important of which are the Indus, the Shyok, and the Shigar, together with the Drās and Physical aspects.

Suru rivers which unite near Kargil, the Braldu and Bashar which join the Shigar, and the Hushe and Saltaro which join the Shyok just above Khapalu, one of the most fertile oases in Baltistān.

Botany. There are no forests of any size or value. *Deodārs* and pines grow in clumps on the hills. In the villages and along the roadsides, where water is available, poplars and willows, as well as fruit-trees, grow freely. On the hill-sides and uncultivated land cumin-seed, violets, truffles, and asafoetida are gathered by the people.

Climate. The rainfall is light, about 6 inches in the year, and the air is dry and bracing. The snowfall is often considerable, and is of great importance to the villages which depend on the snow for their irrigation. In Skārdu and Shigar snow remains from the middle of December till the middle of March. In Rondu snow rarely lies. The cold is intense, most of the rivers freeze and form natural roads, superior to the rough tracks on their banks, and there are many villages which the sun's rays do not reach for more than an hour daily. The climate in the spring and autumn is mild; but in July and August the heat in the villages on the Indus is very severe, especially in the sandy plains of Skārdu and the narrow rock-bound valley of Rondu.

History. The old rulers of Baltistān, known as Rājās or Gialpos, trace their descent from a *fakīr*. One of the most famous of the Gialpos was Alī Sher, who lived about the end of the sixteenth century. He conquered Ladākh, and built the fort on the rock at Skārdu. Ahmad Shāh was the last of the independent Rājās. His fort was captured by the Dogrā general, Zorāwar Singh, in 1840, and he himself accompanied Zorāwar Singh on his ill-fated expedition into Tibet, and died in captivity near Lhāsa. Several of his near relatives were deported as political prisoners to Kashmīr, where their descendants still live. The present Rājās of Baltistān have little recognized power, but the people still look up to them with respect, and have endured their unlicensed exactions with patience.

The people. The Baltis are of the same stock as the Ladākhis. They have Mongolian features, high cheek-bones, and eyes drawn out at the corners, but the nose is not so depressed as is the case with the Bhotis of Ladākh. There is very little to distinguish the Baltis from the Ladākhis, save the absence of the pigtail, but they are perhaps slighter in build and taller. They are good-natured and patient, and are devoted to polo. In spite of much oppression, they are a merry, light-hearted race,

always ready to laugh. Their dress consists of a skull-cap, coat and trousers of wool, and raw skin boots made comfortable by grass quilted inside. They shave the head, leaving long elf-locks growing from behind the temple into which they entwine flowers.

When the Baltis adopted Islām and became Shiahs they eschewed polyandry; and while in Ladākh, where polyandry prevails, the population does not fall heavily on the land, in Baltistān the population, owing to polygamy, is too large for the cultivated area. The density rises to 1,649 persons per square mile of cultivation in Khapalu, and the average per square mile of cultivation is 1,467. The constant subdivision of the lands held by a family leads to holdings becoming so small that the occupier can no longer subsist by cultivation, but deserts his land and turns to other means of earning a livelihood. There is in consequence much real poverty, and the Baltis emigrate to India in search of labour, or carry loads to Gilgit and Ladākh.

The principal castes are Rājā, Balti, Saiyid, and Brukpa. The Baltis are numerically the strongest, and hold most of the land; but the Rājā caste, including the local chiefs and their collaterals, hold a considerable area of cultivation and enjoy numerous privileges. The Brukpa are immigrants from Dardistān, and are a distinct people from the Baltis. According to Major Kaye, Settlement Commissioner, Kashmīr, they correspond to the Dum in Kashmīr in their position among the village community.

The most important tracts in Baltistān are Skārdu, Shigar, Braldah, Basha, Rondu, Haramosh, Kiris, Khapalu, Chorbat, Parkutta, and Tolti. Farther east lies Kargil, where some of the population are Buddhists, acknowledging the Grand Lāma of Lhāsa as their spiritual head. The Baltis have suffered great hardships from maladministration and forced labour in the past. The language of the people is Tibetan, with a small admixture of Persian and Arabic. It slightly differs from the Ladākhi language, but the two peoples understand each other's talk.

Cultivation depends on irrigation; and where water is plentiful excellent crops are raised. The actual work of cultivation, except ploughing, is done almost entirely by women, as the men are away tending cattle on the distant pastures, carrying loads to Ladākh and Gilgit, or repairing the water-courses and the terraces on which their little fields are built up. In many places the fields are too small for ploughing by Agriculture.

cattle, and then either spade labour is employed or the ploughs are drawn by human beings. The plough is light and is made entirely of wood. The chief spring crops are wheat, barley, beardless barley (*grim*), peas, beans, and lentils; while buckwheat, *chīna* (*Panicum miliaceum*), and *kangni* (*Setaria italiça*) are the most important of the autumn crops. Turnips are also grown as a following crop after barley and *grim*. Except in the higner and colder tracts, or where manure is deficient, the land bears two crops each year.

Certain land, usually strong and difficult to cultivate, situated high up the source of irrigation above the cultivation proper of the village, and known as *ul ābi*, is reserved for growing fodder-grasses, chiefly lucerne. This is always watered, fenced, and carefully looked after.

The soil is light, and requires little ploughing. The time for sowing depends on the snow, and when snow lies long it is artificially cleared by sprinkling earth over it. Among other peculiarities of cultivation in Baltistān may be noticed the large amount of irrigation given to spring crops as compared with that given to autumn crops; the practice of rooting out the crops, instead of cutting them; the little preparation given to the soil after the spring crop has been harvested and before the autumn crop is sown on the same land; and the utter absence of rotation crops. In some villages good tobacco is grown. No crops can be raised without manure. As winter approaches, earth is stored on the house-tops and mixed with the dung of cattle and human excrement. The latter is always collected in small walled enclosures. The manure is carried out in the spring in baskets and spread thickly over the land. Frost or early snowfall may cause a failure of crops.

Fruits play an important part in the economy of the Baltis. The apricots are celebrated, and are largely exported to Kashmīr and the Punjab. The dried fruit and the kernels are both in great demand. The traders pay large sums in advance for the crop. Mulberries are an important source of food. Raisins are exported. Excellent peaches, in quality hardly surpassed by the best English fruit, and good grapes, melons, and cucumbers are common.

Minerals. Gold-washing is carried on in many villages, and all find it profitable, and pay most of the revenue from this source. The State charge for a licence for gold-washing is Rs. 10. In Kargil to the south-east of Baltistān the gold industry is of some importance, and for the most part the sand is excavated high above the present river-level. The present methods of

washing are wasteful, and with better appliances the industry might give a large return. Arsenic is met with, and sulphur abounds. Copper is found in Rondu, and white nitre exists in several places, but is not collected.

Commerce and trade.

There is very little trade. Tea, cloth, sugar, and rice are imported, and there is a small business in salt from Ladākh. The most considerable export is that of apricots and apricot kernels, but raisins are also exported to Kashmīr. A special manufacture is a very close thick black *pattū* (*frekhan*), resembling the cloth of which pilot-jackets are made. A curiosity is the *zahri-mora*, a green soft stone like an inferior jade found in the Shigar valley. Cups and plates are made of it, and in Kashmīr and the Punjab it is used as an antidote to poison and as a cooling lotion in eye diseases.

Roads.

Communications are of the worst description, and money judiciously spent in road-making would add greatly to the comfort and prosperity of the Baltis. Several routes connect Baltistān with Kashmīr, Ladākh, and Astor, and one dangerous track leads to Gilgit. Of the Kashmīr routes, one passes over the Deosai plains. These lie at an elevation of 13,000 feet, and are surrounded by a ring of lofty mountains. For most of the year they are under snow, and even in the summer the cold at nights is intense. The so-called plains are mournful stretches of grass and stones, with many a bog difficult to cross, and uninhabited but for the marmots, an occasional bear, and swarms of big black gnats. The absence of wood for fuel, the distance from human habitations, and local superstitions regarding 'the devil's place' prevent the people from using the pastures of Deosai.

Administration, &c.

Baltistān has recently been placed under the charge of the Wazīr Wazārat of Ladākh. His local deputies are the *tahsīldārs* of Skārdu and Kargil. Both *tahsīls* have recently been settled by a British officer, and it is probable that the long-suffering and patient Balti may look for better days. The ex-Rājās, or Gialpos, still exercise some authority over the people, and a definite sum out of the several collections has now been alienated in favour of each family. The total land revenue assessed at the recent settlement of the *tahsīls* of Skārdu and Kargil was 1·4 lakhs. Of this about a fourth is taken in kind.

Description.

Gilgit.—Head-quarters of a scattered district or Wazārat of the Kashmīr State, situated in 35° 55′ N. and 74° 23′ E., at an elevation of 4,890 feet above sea-level. The Wazārat stretches south to Astor and the northern slopes of the Burzil, follows

the Astor river to its junction with the Indus, and then runs north along the Indus to Bunji. It was once a flourishing tract, but has never recovered from the great flood of 1841, when the Indus was blocked by a landslip below the Hattu Pīr, and the valley was turned into a lake. Opposite Bunji is the valley of Sai, and 6 miles farther up the Gilgit river falls into the Indus. Gilgit is about 24 miles from the Indus, and has a considerable area of fertile irrigated land. The Wazārat now includes the tract known as Haramush on the right bank of the Indus, and numerous valleys leading down to the Gilgit river. To the north the boundary reaches Guach Pari on the Hunza road, and up the Kargah nullah as far as the Bhaldi mountain to the south in the direction of Darel. From Gilgit itself mountain roads radiate into the surrounding valleys, and its geographical position now, as in ancient times, renders the fort on the right bank of the Gilgit river an important place. A suspension bridge connects Gilgit with the left bank, which is here as barren as the right bank is fertile. The ancient name of the site under its Hindu Rās was Sargin. Later it was known as Gilit, which the Sikhs and Dogrās corrupted into Gilgit, but to the country people it is familiar still as Gilit or Sargin Gilit. It lies in the most mountainous region of the Himālayas. Within a radius of 65 miles there are eleven peaks ranging from 18,000 to 20,000 feet; seven from 20,000 to 22,000 feet; six from 22,000 to 24,000 feet; and eight from 24,000 to 26,600 feet. At their bases the mountains are barren and repellent, but at 7,000 feet there are fine forests of juniper and fir. Higher up grows the silver birch, and above all vegetable growth lie sweep after sweep of glacier and eternal snow.

Botany. The pencil cedar is found from 14,400 feet down to 6,000 feet, and sometimes reaches a girth of 30 feet. *Pinus excelsa* grows between 9,500 and 12,000 feet. The edible pine is common in Astor, ranging from 7,000 to 10,000 feet. The useful birch-tree is common, and grows as high as 12,500 feet. The tamarisk does well in the barren valleys up to 6,000 feet. Roughly speaking, the upper limit of vegetation round Gilgit is 16,200 feet; above this the rocks are stained with lichens.

Fauna. Here are found the ibex and *mārkhor* (*Capra sibirica* and *C. falconeri*), and their deadly foe, the beautiful snow ounce (*Felis uncia*), and occasionally the wild dog (*Cyon dukhunensis*). The red bear (*Ursus arctus* or *isabellinus*), the snow cock (*Tetraogallus himalayanus*), and the grey partridge are common; and many of the migratory birds of India, wild geese,

duck, and quail, pass up and down in the autumn and spring. Below the forest, on the lower and more barren hills, numerous flocks of wild sheep (*Ovis vignei* and *O. nahura*) are met with.

Climate.

The climate is healthy and dry. At Gilgit itself it is never very cold, and snow seldom lies for more than a few hours. In the summer it is hot owing to the radiation from the rocky mountains, but it is cool compared with the climate of Northern India. The rainfall is very light.

History.

The remains of ancient stone buildings and Buddhist carvings suggest that Gilgit was once the seat of a Buddhist or Hindu dynasty, while traces of abandoned cultivation point to the fact that the population in early times was far larger than it is at present. For many centuries the inhabitants of Gilgit have been Muhammadans, and nothing definite is now known of their Hindu predecessors. Tradition relates that the last of the Hindu Rās, Srī Badat, known as Adam-Khor, the 'man-eater,' was killed by a Muhammadan adventurer, who founded a new dynasty known as Trakhane. Srī Badat's rule is said to have extended to Chitrāl, and the introduction of Islām seems to have split up the kingdom into a number of small states carrying on a fratricidal warfare and incessant slave-raiding. The Trakhane dynasty is now extinct, though it is claimed that the present titular Rā of Gilgit has a slight strain of Trakhane blood. In the early part of the nineteenth century we find Yāsīn giving a Rā to Gilgit. He was killed by the ruler of Puniāl, who in turn was killed by Tair Shāh, chief of Nagar. Tair Shāh was succeeded by his son, who was killed by Gauhar Aman, ruler of Yāsīn. For the subsequent history of Gilgit, see KASHMĪR. The history of Astor, or, as the Dogrās call it, Hasora, is intimately connected with that of Skārdu. More than 300 years ago Ghāzī Mukhpun, a Persian adventurer, is said to have married a princess of the Skārdu reigning family. The four sons born of this union became Rās of Skārdu, Astor, Rondu, and Kharmang respectively, and from them are descended the families of the present chiefs of those places. The independence of Astor ceased at the Dogrā conquest. The present titular Rā of Astor is the lineal descendant of Ghāzī Mukhpun. The Dogrā rule has secured peace to the people, but it will be long before the country recovers entirely from the desolating slave-raids of Chilās.

The people.

The Wazārat contains 264 villages, and the population, according to the Census of 1901, is 60,885. The pressure on the cultivated area is great, the density being 1,295 persons per square mile. The people of Astor and Gilgit would be

surprised if they were told that they were Dards living in Dardistān, and their neighbours of Hunza-Nagar and Yāsīn would be equally astonished. If consulted, they would probably describe their country as Shīnāka, or the land of the Shīns, where Shīnā is the spoken language. They are an Aryan people, stoutly built, cheery, honest, frugal, and sober. They are devoted to polo, and are fond of dancing. The inhabitants of Astor wear a peculiar head-dress: a bag of woollen cloth, half a yard long, which is rolled up outwards at the edges until it gets to the size to fit comfortably to the head, round which the roll makes a protection from cold or from sun, nearly as good as a turban. Their houses are small, with very small doors, and are usually built out from the mountain side. Warmth is the one consideration. The Astoris have some very peculiar customs. Drew notices that they hold the cow in abhorrence. They will not drink cow's milk, nor will they burn cow-dung, the universal fuel of the East, and in a pure Shīn village no one will eat fowls or touch them. They practise inoculation for small-pox, their one epidemic. The people of Astor are Musalmāns, two-thirds being of the Sunni persuasion, and the rest being either Shiahs or Maulais. There is no religious intolerance in Astor.

Drew mentions the following caste divisions: Ronu, Shīns, Yashkun, Kremins, and Dums. As regards the Ronu caste, he says that there are a small number of families in Gilgit. Biddulph, in his *Tribes of the Hindu Koosh*, states that it forms 6 per cent. of the Gilgit population, and that it is the most honoured caste of all, ranking next to Mukhpuns or the Rājā caste of Dardistān. The majority of the Astoris belong to the Yashkun caste, and the Shīns are few in number, under 3,000. They are more numerous in Gilgit, the total number of Shīns, according to the Census, being 7,733. The Shīns are regarded with great respect by the Yashkuns and the other castes. The Yashkuns claim the Shīns as their forefathers. The Shīns give their daughters to Ronus and to Saiyids, but take wives from the Yashkuns. Far away in Central Ladākh, in the Hanu valley, live other Dards of the Buddhist religion. They have retained the Aryan type of the country, whence they came and its Shīnā dialect, but they wear the pigtail and the Ladākhi cap. It is said that, though Buddhist by name, they really worship local spirits and demons. They practise polyandry, but they will not eat with Tibetan Buddhists, and, like the Shīns in Dardistān, they hold the cow in abhorrence.

In Gilgit, as in Astor, there are few social subdivisions, for

the people are forced to depend on themselves for most wants of life. The language spoken is Shīnā, though only a small percentage of the population is Shīn. The religion is Islām, the Shiah sect preponderating. There is an entire absence of fanaticism. The national character is mild, and the men are unwarlike. The Gilgiti is attached to his home and his family, and is an industrious cultivator. Both men and women are strongly built, and of a fairer complexion than the people of India. The women paint their faces with a kind of thin paste to keep the skin soft and to prevent sunburn. They are fond of flowers, and decorate their caps with irises and roses.

Agriculture.

The cultivation is of a high character. The fields are carefully tilled, heavily manured, and amply irrigated. In Gilgit itself good rice is grown; and crops of wheat, barley, maize, millet, buckwheat, pulses, rapeseed, and cotton are raised, while fruit is plentiful. There is very little grazing land, and cattle are scarce. Lucerne grass is largely cultivated for fodder.

In the cold dry climate of Astor cultivation is carried on to an elevation of 9,000 feet. It depends entirely on irrigation by little channels known as *kul*. The chief crops are wheat, barley, peas, maize, millet, and buckwheat. The people pay great attention to fodder and cultivate the lucerne grass. Cultivation is precarious in Astor, as the crops frequently do not ripen owing to the cold, and there are several vegetable pests in the shape of worms.

Minerals.

Many of the streams are rich in gold, especially those which flow from Hunza and Nagar, and also the Indus above Chilās. Gold-washing is carried on in the winter chiefly by the poorer members of the population, though the work is often remunerative. At Chilās whole families live by the work. The gold is of fair quality, the best being twenty carats. The Bagrot valley is celebrated for gold-washing, and contains many signs of mineral wealth.

Commerce and trade.

The only manufacture is the weaving of woollen cloth (*pattū*), but this is for home use and not for sale. Trade does not flourish. The local wants are few, and the only chance of Gilgit becoming an important commercial centre lies in the opening of a trade route to Yārkand. The chief staple of import is salt. Russian chintz is brought down from Yārkand, and is said to be more durable than the English article.

Roads.

The most important roads are those leading to India. The 10-foot road over the Burzil and Rāj Diāngan passes has been

described in the article on KASHMĪR. By that route Gilgit lies at a distance of 390 miles from the present railway base at Rāwalpindi. An alternative line has been opened over the Babusar pass, which brings Gilgit within 250 miles of the railway at Hassan Abdāl. This line, besides being shorter, has the advantage of crossing only one snow pass, instead of two, or practically three, if the winter snow at Murree be taken into consideration. The routes to the north are mere tracks, when the military roads connecting Gilgit with the outposts at Gupis and Hunza have been passed.

Post and telegraph offices.

There is a daily postal service with India by the Burzil pass and Kashmīr, and the telegraph line follows the same route. Both services work well in spite of heavy snow and destructive avalanches, and are maintained by the Government of India. There is a weekly postal service from Gilgit to Chilās and Gupis, and a fortnightly post between Gilgit and Kashgar via the Kilik pass in the summer, and the Mintaka in the winter.

Administration, &c.

The Gilgit Wazārat is in charge of a Wazīr Wazārat. Crime is slight; there is no jail and no police organization. Police duties are carried out by the levies and a few soldiers of the Kashmīr regular troops. There is little litigation; and the chief business of the Wazīr is the provision of supplies to the garrison at Gilgit, now effected by an excellent system of transport from Kashmīr. In 1891–2, at the time of the Hunza-Nagar expedition, the garrison had a force of 2,451; in 1895, when the Chitrāl disturbances broke out, it consisted of 3,373; and the present garrison numbers 1,887, including a mountain battery, two infantry Imperial Service regiments, and Kashmīr sappers and miners. A school is maintained at Gilgit.

Land revenue.

A land revenue settlement of Astor and Gilgit has been made. It was found impossible to introduce a purely cash assessment, owing to the State's requirements in grain; but many inequalities and abuses were removed, and, on the whole, the condition of the villagers is satisfactory.

Political relations.

A British Political Agent resides at Gilgit. He exercises some degree of supervision over the Wazīr of the Kashmīr State, and is directly responsible to the Government of India for the administration of the outlying districts or petty States of Hunza-Nagar, Ashkuman, Yāsīn, and Ghizar, the little republic of Chilās, and also for relations with Tangir and Darel, over which valleys the Puniāl Rās and the Mehtarjaos of Yāsīn have partially acknowledged claims. These States acknowledge the suzerainty of Kashmīr, but form no part of its territory. They pay an annual tribute to the Darbār–

Hunza and Nagar in gold, Chilās in cash (Rs. 2,628), Ashkuman, Yāsīn, and Ghizar in grain, goats, and *ghī*. The relations of the Political Agent with the outlying States are eminently satisfactory. No undue interference takes place in the administration, and the people are encouraged to maintain their customs and traditions intact. Besides the military garrison, furnished by the Kashmīr State, there is a small but extremely efficient force of local levies armed with Snider carbines. They are drawn from Hunza, Nagar, Puniāl, Sai, and Chilās.

Shināki.—A group of small republics in the valley of the Indus, lying west of Kashmīr and south of Gilgit. The territory extends from the junction of the Astor river with the Indus to Seo on the right bank and Jalkot on the left bank of the latter river. Within this area the people are grouped in communities inhabiting one or more nullahs, each community forming a separate republic. Starting from the junction at Rāmghāt these are, in order: on the right bank, Gor, Kinergah, and Hodar; and on the left bank, Bunar, Thak, Butogah, Giche, and Thor. They constitute the area known as the Chilās subdivision of the Gilgit Agency, while Chilās proper includes Kinergah, Butogah, and Giche. Lower down the river are Darel, Tangir, Khilli, and Seo on the right bank, and Harban, Sazīn, and Jalkot on the left bank.

After the conquest of Chilās by Kashmīr in 1851, the Mahārājā imposed a tribute in gold-dust, and arranged for the administration of the country as part of the Gilgit district. A British Agency was re-established at Gilgit in 1889, which included, among other territory, the Chilās subdivision described above except Thor. In 1892 a British mission to Gor was attacked by the Chilāsis, which led to the occupation of their country and the appointment of a Political officer at Chilās. The right of the Kashmīr Darbār to construct roads and station a limited number of troops in the territory was secured, but the autonomy of the Chilāsis was guaranteed. Under the revised arrangements made in 1897 the republics pay small fixed sums to the Mahārājā, and in 1899 Thor was incorporated in Chilās. Darel has rendered a tribute of gold-dust to Kashmīr since 1866, when the Mahārājā's troops raided the country. The tribute is now paid through the Puniāl governor. Tangir pays a small tribute to the governor of Yāsīn. The remaining communities have no political relations with either Kashmīr or British India, except Jalkot, which from its position dominates Thor and the head of the Kāgān valley in the North-West Frontier Province.

Hunza-Nagar.—Two small chiefships lying to the extreme north-west of Kashmīr, on the banks of the Hunza river. Towards the north they extend into the mountainous region which adjoins the junction of the Hindu Kush and Muztāgh ranges; in the south they border on Gilgit; on the west Hunza is separated from Ashkuman and Yāsīn by a range of mountains; while the Muztāgh range divides Nagar from Baltistān on the east. The inhabitants of both chiefships come from the same stock and speak the same language, but are not usually on good terms with each other. In Hunza the people are Maulais or Ismailis, followers of the Agā Khān, while in Nagar they are ordinarily Shiahs.

Lying between these States and Gilgit are Chaprot and Chalt fort with some attached villages, which were long a source of contention between the rival chiefs. In 1877 the ruler of Nagar, with the assistance of the Kashmīr Darbār, successfully occupied the disputed tract; but in 1886 he was persuaded to withdraw his troops, which were replaced by a garrison from Kashmīr. In the same year Ghazan Khān, the *Tham* or chief of Hunza, was murdered by his son Safdar Alī, who succeeded him and professed submission to the Mahārājā of Kashmīr. The two chiefs combined in 1888, and ejected the Kashmīr troops from Chaprot and Chalt, even threatening Gilgit, but both strongholds were reoccupied by the Kashmīr forces after a few months.

A British Agency was re-established at Gilgit in 1889; and the chiefs agreed to respect the control of the Agent, to allow free passage through their territory, and to stop raiding on the Yārkand road and elsewhere, yearly subsidies being granted to them, besides the amount paid by the Kashmīr State. These engagements were not respected; and in May, 1891, a combined force from Hunza and Nagar threatened Chalt, but dispersed on the arrival of reinforcements. Later in the year they refused to allow roads to be made to Chalt, extending to their own country, and it became necessary to dispatch troops against them. Nagar and Hunza were occupied, and the *Tham* of the former place submitted, while Safdar Alī, the *Tham* of Hunza, fled to Chinese Turkistān. The subsidies were withdrawn, and a Political officer and military force remained at Hunza till 1897; but in 1892 Muhammad Nāzim Khān was installed as *Tham* in place of his half-brother Safdar Alī, while the *Tham* of Nagar was reinstated. In 1895 subsidies were again granted by the Government of India and the Kashmīr State, and in the same year both chiefs assisted in the relief of Chitrāl.

Zafar Zāhid Khān, *Tham* of Nagar, died in 1904 and was succeeded by his son Sikandar Khān.

The chief of Hunza, who claims Roskam and the Taghdumbāsh Pāmir north of the Hindu Kush watershed, is permitted to exchange presents with the Chinese authorities in Kashgar, but these relations are under consideration. Both States are autonomous as regards internal affairs, and acknowledge the suzerainty of the Mahārājā of Kashmīr, to whom they pay a tribute of nominal value. They furnish levies for the defence of the frontier, who receive pay from the Kashmīr State, and are armed with Snider carbines, presented by the Government of India.

Bāramūla.—Town in the State of Kashmīr, situated in 34° 13′ N. and 74° 23′ E. Population (1901), 5,866. Owing to its position as the river port of Kashmīr, this is a place of some importance; but in consequence of the opening of the cart-road from Bāramūla to Srīnagar, the boat traffic, on which the inhabitants chiefly depend, may in time decrease. It is situated on the left bank of the Jhelum, which is crossed at the east end of the town by an excellent bridge. The inhabitants are for the most part traders or shopkeepers. Bāramūla is very liable to earthquakes, and in 1885 it was almost reduced to ruins. The name is derived from the ancient city Vārahmūla, which stood on the right bank of the river along which the old route down the Jhelum used to run. Opposite, on the bank where the present Bāramūla stands, was the town of Hushkapura, founded by king Huvishka, the Kushan ruler, who succeeded Kanishka. The site of the ancient Hushkapura is about two miles to the south-east of the modern Bāramūla.

Islāmābād.—Town in the State of Kashmīr, situated in 33° 44′ N. and 75° 12′ E., about a mile from the right bank of the Jhelum, near the point where that river becomes navigable. Population (1901), 9,390. It lies under an elevated table-land, on the edge of which rises a conical hill, overlooking the town. From its foot flows a vigorous spring, the Anantnāg, a name applied to the town by Hindus. There are numerous other springs, one of which, the Maliknāg, is sulphurous, and its water is highly prized for garden cultivation. Many of the inhabitants are shawl-weavers, and a large number are engaged in agriculture. It is generally believed that Islāmābād was once a large and prosperous place, but now there are few signs of prosperity or growth. The sanitation has been much neglected, and this constitutes a danger to the health of the capital, Srīnagar.

Jammu Town.—Capital of the Jammu province, Kashmīr State, and the winter head-quarters of the Mahārājā, situated in 32° 44′ N. and 74° 55′ E., at an elevation of 1,200 feet above sea-level. Population (1901), 36,130. It lies high on the right bank of the river Tāwi, which flows in a narrow ravine to join the Chenāb. The town covers a space of about one square mile, densely packed with single-storeyed houses of round stones and mud with flat tops. In the upper portion are superior houses of brick, and in the Mandi stand the State offices and the palaces of the Mahārājā and his brother. The general effect of Jammu is striking; and from a distance the whitewashed temples, with their gilded pinnacles, suggest a splendour which is dispelled on nearer acquaintance. The most conspicuous of the temples is Raghunāthji, but like all the other buildings in Jammu it is commonplace. The Dogrās have little taste in architecture, and are essentially economical and practical in their ideas of domestic comfort.

The railway, which runs to Siālkot, a distance of about 27 miles, starts from the left bank of the Tāwi. The river is spanned by a fine suspension bridge, and a good cart-road runs from the bridge as far as the Mandi. The other streets are narrow and irregular, and there is nothing of striking interest. Of late years the construction of water-works, the opening of the cart-road to the Mandi, the suspension bridge over the Tāwi, and the railway extension from Siālkot have improved the conditions of life in Jammu; but there has been no marked response either in population or in prosperity.

In the palmy days of Rājā Ranjīt Deo, towards the latter part of the eighteenth century, it is stated that the population was 150,000. There is nothing in the geographical position of Jammu which makes for prosperity. It lies on the edge of the Mahārājā's territories, with an infertile hinterland. Rightly speaking, it should have been the emporium for Kashmīr commerce, but the construction of the Kohāla-Srīnagar cart-road has taken trade away from the Jammu-Banihāl route. At present there are hopes of the development of coal-mines to the north, which might bring prosperity to the Dogrā capital; and the railway projected from Jammu to Srīnagar would restore much business.

The town is situated on a hill. It may be aptly called 'the city of temples,' as every traveller is likely to be impressed with these, while approaching by road or train. The largest and the central place of worship is the temple of Sri Raghunāthji. The town was a great centre of industry in the time of the

late Mahārājā Ranbīr Singh, but now it is merely the residence of the ruling family and the officials of the State. The governor (Hākim-i-Ala) of the province with his revenue office, the Chief Judge, the Sub-Judge and two magistrates of the first class, the Wazīr-i-Wazārat of the Jammu district, the Superintendent of police, Jammu province, the chief medical officer, and the heads of various departments all live in Jammu, together with the staff of their several offices. A large hall called the Ajaibghar was erected by the late Mahārājā for the accommodation of the present King-Emperor, when he visited Jammu as Prince of Wales in the year 1875. The Mandi Mubārak palaces and the palace of Rājā Sir Amar Singh, situated on the Rāmnagar hill, towards the north of the town, are the chief attractions. The Central jail has a daily average of 268 prisoners, and costs about Rs. 20,000 per annum. The State high school is located in a large building, and is doing fairly efficient work. It contains about 800 pupils. A college to be named after the Prince of Wales is shortly to be opened. A State hospital is maintained, costing annually Rs. 14,800. Great improvements have been made in the drainage system of the town, which is managed by a municipal committee, and more improvements in this respect are under contemplation.

Kathua.—An overgrown village in the Jasrota district, Jammu province, Kashmīr, situated in 32° 22′ N. and 75° 32′ E., on the right bank of the Rāvi and between it and the Ujh river. Population (1901), 5,801. Kathua possesses no points of interest. The buildings are mean and dilapidated, and the place has no past and no future. The climate is unhealthy, and the water-supply scanty and bad.

Mīrpur.—Town in the Bhimber district, Jammu province, Kashmīr, situated in 33° 11′ N. and 73° 49′ E., at an elevation of 1,236 feet above sea-level. It lies 22 miles north of the British cantonment of Jhelum, and is said to have been founded about 200 years ago by the Gakhars, Mīrān Khān and Sultān Fateh Khān. It is situated on high ground on the edge of the Kareli Kas, from which drinking-water is easily procured. There are several rather picturesque temples, the chief being the Sarkāri Mandir, built by Mahārājā Gulāb Singh, the Raghunāthji, and the temple of Dīwān Amar Nāth. The town contains 550 shops, forming a long bazar running east and west. Apart from the shop-keeping class, Brāhmans and Sikhs, of whom many are settled in Mīrpur, the inhabitants are mostly of the artisan or menial classes. There is a flourishing

State school badly housed, and a dispensary in a building wholly unsuited to the purpose. The town has a neglected appearance. The streets are badly laid, dirty, and undrained, and there are no attempts at conservancy. Trade is brisk. It is mostly in the hands of Mahājans and Khattrīs. The chief articles of export to British India are grain, *ghī* from the hills and Pūnch, and minor forest products from Kotli, Pūnch, and Rājauri; the chief imports are salt, cloth, tea, and sugar.

Pūnch.—Principal place in the *jāgīr* of the same name, Kashmīr State, situated in 33° 45′ N. and 74° 9′ E., at an elevation of 3,300 feet above sea-level. It lies on sloping ground above the right bank of the Tāwi. Population (1901), 8,215. The town is oblong in shape, and is unwalled, with narrow streets. There are about 750 houses, generally single-storeyed with flat mud roofs. The fort, in which the Rājā resides, stands on a mound about 300 yards from the south-west corner of the town. Pūnch is well supplied with water brought by channels from the neighbouring streams. The climate is hot in the summer, and the rice-fields in the neighbourhood are probably one of the causes of the prevalence of fever. During the five hot months it is the custom to migrate to the hills to the summer camping-ground known as Dhoks. There is a flourishing market and a large trade is done in grain and *ghī*, in spite of the fact that there are no roads in the *jāgīr* fit for cart traffic. A good six-foot road for pack transport has nearly been completed from the town to Uri on the Jhelum, and there is a project for a road to Rāwalpindi, with a suspension bridge over the Jhelum at Lachman Pātan. Other important tracks lead to Gulmarg and Tosh Maidān in Kashmīr, and to Jhelum. The ancient name was Parnotsa, and the place is often mentioned in the chronicles. The Kashmīris always speak of Pūnch as Prunts.

Situation. **Srīnagar.**—Capital of Kashmīr State, situated in 34° 5′ N. and 74° 50′ E., at an elevation of 5,250 feet above sea-level. The city lies along the banks of the Jhelum, with a length of about 3 miles and an average breadth of 1¼ miles on either side of the river. Originally houses were confined to the right bank of the river, and the site possesses many advantages, strategical and economic. It is not known when the extension on the left bank took place, but the royal residence was transferred to it in the reign of Ananta, 1028–63. Modern Srīnagar, on the right bank, occupies the same position as the ancient city of king Pravarasena II, who ruled at some period of the sixth century. Kalhana, in his famous chronicle, says that the

city contained 3,600,000 houses, and, writing of his own times, he states that there were mansions reaching to the clouds. Later Mirza Haidar and Abul Fazl mention the lofty houses of Srīnagar built of pine-wood; and Mirza Haidar says that the houses had five storeys, and that each storey contained apartments, halls, galleries, and towers. The city lies cradled between the hill of Sarika, now corrupted into Harī Parbat, and the hill of Gopa (Gopādri), now commonly known as Takht-i-Sulaimān or 'Solomon's throne.' Beyond the hills lies the exquisite Dal Lake, the never-failing source of food as well as pleasure to the citizens. In Hindu times the Harī Parbat was not fortified. The present fort on the summit is quite modern, and the bastioned stone wall enclosing the hill was built by Akbar. There are various legends regarding the temple known to the Hindus as Sankarāchārya, which crowns the picturesque peak of the Takht-i-Sulaimān. The superstructure is not ancient; but the massive and high base of the temple is probably very old, and is connected with the worship of Jyeshtharudra, in whose honour the legendary king Jalauka built a shrine.

Buildings.

There are not many buildings of note in Srīnagar. On the left bank stands the Shergarhi, the modern palace of the Dogrā rulers, where the Mahārājā and his family live and the State officials work. The site was chosen by the Afghān governors for their fortified residence. Across the river is the finest *ghāt* in Srīnagar, the Basant Bāgh, with grand stone steps pillaged from the mosque of Hasanābād, a reversal of the more common conditions in Kashmīr, for most of the modern buildings in the valley are formed of materials robbed from the old Hindu temples. Lower down on the right bank is the beautiful mosque of Shāh Hamadān, one of the most sacred places in Kashmīr. As usual, it was built on the foundations of a Hindu temple, and a Hindu idol in a niche in the stone foundation is daily worshipped by the Hindus. It is constructed of *deodār*-wood beautifully carved. The pagoda-like roof is surmounted by a curious finial capped with brass, and the four corners of the roof are finished by a kind of gargoyle with large wooden tassels attached, a form of construction which distinctly suggests Buddhist influence. Next in sanctity to the Shāh Hamadān is the great mosque, or Jāma Masjid, a short distance from the right bank of the Jhelum, between the bend of the river and the Harī Parbat. This is a Saracenic building of some grandeur, with cloisters about 120 yards in length, supported by grand pillars of *deodār* 30 feet in length, resting

on stone foundations, once part of Hindu temples. The Jāma Masjid has passed through many vicissitudes. Originally built by the great king Zain-ul-ābidīn, it was many times destroyed by fire, and was many times rebuilt, once by Shāh Jahān. It was repaired by the Afghān Muhammad Azīm Khān. The Sikhs closed the mosque for twenty-three years, but their Musalmān governor, Shaikh Ghulām Muhī-ud-dīn, reopened it. The ground on which it stands is still sacred to Buddhists from Ladākh and to the Hindus. Nearly opposite to the Shāh Hamadān is the stone mosque founded in the reign of Jahāngīr by his queen Nūr Jahān. This was rejected by the Kashmīris on account of the sex of the founder, and has always been appropriated to secular uses. Other notable religious buildings of the city are the shrine of Makhdūm Sāhib below the Harī Parbat, and those of Pīr Dastgīr and the Nakshbandi.

Name. Srīnagar means the city of Srī or Lakshmī, the goddess of fortune; but to the people of the valley the city is still known as Kashmīr, a name full of meaning, inasmuch as until quite recent years the welfare of the villagers was subordinated to the selfish interest of the city people, and Srīnagar was in fact as well as in name Kashmīr.

Fires. Admirably situated on a navigable river, with canals leading to the Dal and Anchār Lakes, in a neighbourhood of extraordinary fertility, and recently endowed with an excellent water-supply, the city of the goddess of fortune is liable to cruel visitations of fires, floods, earthquakes, and cholera. The wooden houses are an easy prey to fire; and every man, woman, and child carries a potential instrument for a conflagration in the *kangar*, or *kangri*, and the beds of straw very quickly start a fire. Easily lighted, these fires are very difficult to extinguish, as the wretched lanes are narrow and tortuous, and the people very helpless and inert. Twice, in the time of the late Mahārājā Ranbīr Singh, the greater part of the city was burnt down, and before his accession Srīnagar had been destroyed by fire sixteen times. Within the last ten years there have been two serious fires. One broke out near the second bridge and destroyed nearly a mile of the city, and the other burnt down the chief emporium of trade, the Mahārājganj.

Floods. The city chokes the course of the Jhelum; and when continuous warm rain in the southern mountains melts the snows, the river comes down in high flood and great loss is caused to the lower parts. In 1893 there was a memorable flood; but luckily the climax came in daytime and only seventeen of the city people were killed, sixteen from drowning and one

from the falling of a house. The first bridge, the Amīran Kadal, stood, though it was submerged; but the second bridge, the Hawā Kadal, succumbed and carried away the other five bridges which span the river. The old-fashioned and picturesque Amīran Kadal has now been replaced by a handsome masonry bridge. The flood of 1893 was surpassed by the yet more serious inundation of 1903.

The valley is liable to earthquakes, and since the fifteenth century eleven great earthquakes have occurred, all of long duration and accompanied by great loss of life. The last two assumed their most violent form in an elliptical area of which Srīnagar and Bāramūla were the focuses. In 1885 the shocks lasted from May 30 till August 16. There was a general panic and the people slept out of doors. Just as the style of house in Srīnagar lends itself to conflagration, so does its very frailty enable it to bend before the shock of the earthquake. Earthquakes.

In the great famine of 1877–9, though the city did not suffer to the same extent as the villages, it is stated that the population was reduced from 127,400 to 60,000. Famine.

Epidemics of cholera are unfortunately frequent. In the nineteenth century there were ten visitations, that of 1892 probably proving the most disastrous; 5,781 persons died at Srīnagar and the mortality in one day rose to 600. All business was stopped, and the only shops which remained open were those of the sellers of white cloth for winding sheets. The epidemics were rendered more terrible by the filthy habits of the people and the neglect of sanitation. Since 1892, conditions have improved. A good water-supply has enabled the authorities to keep subsequent epidemics in hand, and well-drained airy streets are replacing the squalid alleys. Streets have been paved and many narrow pits and excavations have been filled in, but much still remains to be done. Cholera.

In spite of drawbacks, the population has risen from 118,960 in 1891 to 122,618 in 1901. Of this total, 27,873 are Hindus and 94,021 are Musalmāns. The mean density is 15,327 persons per square mile, an increase of 451 since 1891. The Kashmīris are notoriously a prolific race, and families of ten to fourteen are not uncommon. Population.

The once famous shawl industry is now only a tradition. The trade received its death-blow in 1870, when war broke out between Germany and France, and the lingering hope of revival was shattered by the famine of 1877–9, when the poor weakly shawl-weavers died like flies. A full description of shawl-weaving will be found in Moorcroft's *Travels*, vol. ii, Shawls.

chap. iii. The State took Rs. 20 per annum from employers of shawl-weavers per head, an impost of 30 per cent. on the manufactured article, and an export duty of Rs. 7–15 on a long shawl and Rs. 5–13 on a square shawl; but the weavers earned only one or two annas per diem. According to M. Dauvergne, the Kashmīri shawl dates back to the times of the emperor Bābar. The first shawls which reached Europe were brought by Napoleon, at the time of the campaign in Egypt, as a present for the empress Josephine, and from that time shawls became fashionable. The shawl was made of the finest wool (*pashm*), obtained from the goats of the Tibetan mountains, the best material coming from the Tian Shan (Celestial Mountains) and Ush Tarfan. The finest shawls were manufactured between the years 1865–72. Prices ranged from Rs. 150 to Rs. 5,000 (British rupees). From 1862 to 1870 the export of shawls averaged 25 to 28 lakhs per annum, and when the trade was at its zenith 25,000 to 28,000 persons were engaged in the manufacture.

Carpets. Many of the shawl-weavers who survived the famine of 1877–9 have now found occupation in the manufacture of carpets, and several Europeans carry on this business. The work is of good quality, and the pattern after being designed by the artist is recorded. The description (*tālīm*) contains a series of hieroglyphs, intelligible only to the craft, indicating numbers and colours. The man who reads these calls out to the rows of sickly men and boys who sit at the loom, 'lift five and use red,' or 'lift one and use green'; but neither he nor the weavers have any idea as to what the pattern of the fabric will be. Many persons are employed in embroidering felts or *namdās*. The best are imported from Yārkand, but felts of a somewhat inferior description are manufactured locally. The coloured felts embroidered in Srīnagar are perhaps the most artistic of the local textiles. Calico-printing is extensively carried on. Coarse locally manufactured cloth is used, and the patterns are similar to the shawl designs. The dyes employed are indigo, safflower, and madder.

Papier mâché. The lacquered work, or papier mâché, once had a great reputation, but at present the industry is in a somewhat reduced condition. The amount of real papier mâché made from the pulp of paper is small, and the lacquer-workers chiefly apply their beautiful designs to smooth wood. These designs are very intricate, and the drawing is all freehand. The skill shown by them in sketching and designing is remarkable. The work is known as *kāri-kalamdāni*, as the best

specimens of the old work were pen-boxes (*kalamdān*); but a variety of articles, such as tables, cabinets, and trays, are now made, and the richer classes decorate their ceilings and walls. Papier mâché has perhaps suffered more than any other industry from the taste of the foreign purchaser, and copal and other European varnishes are now largely used.

The silver-work is extremely beautiful, and some of the indigenous patterns, the *chinār* and lotus leaf, are of exquisite design. The silversmith works with a hammer and chisel, and will faithfully copy any design that may be given to him. Complaints are very common regarding the quality of the silver put into the work, and some simple system of assay would be a boon, not only to the purchaser but also to the manufacturer. Silver-work.

Perhaps the most effective product is the copper-work. The coppersmith works with a hammer and chisels, and many of the present coppersmiths are men who used once to work in silver. They also work in brass. Their designs are very quaint and bold, and they are very ready to adopt any new pattern that may be offered to them. The copper-work of Srīnagar is admirably adapted for electro-plating, and some smiths now turn out a finer kind of article specially for electro-plating. A large demand has arisen for beautiful copper trays framed as tables in carved walnut-wood, and the carpenter is now the close ally of the coppersmith. Of the enamel work the enamels on brass are the best, though the enamelled silver-work is very pretty. A development in recent years has been the clever imitation of Tibetan teapots and bowls, and of Yārkand and Kashgar copper vessels. After manufacture, these are buried in the earth or otherwise treated to give an appearance of age. Copper-work.

The woodwork perhaps lacks the finish of the Punjab carving, but the Kashmīri carver is second to none in his skill as a designer. He works with a hammer and chisel, and a great deal of the roughness and inequality of his pieces is due to the difficulty of obtaining seasoned walnut-wood. The carving is now much bolder than it was formerly, the patterns are larger and the carving very deep. Beautiful ceilings of perfect design, cheap and effective, are made by a few carpenters, who with marvellous skill piece together thin slices of pine-wood. This is known as *khatamband*. A great impetus has been given to this industry by the builders of house-boats, and the darker colours of the walnut-wood have been mixed with the lighter shades of the pine. A good specimen of modern woodwork is found in the well-known shrine of Wood-work.

Nakshbandi not far from the Jāma Masjid. A few of the *khatamband* ceilings have been introduced into England.

Leather. There is a large trade in leather. Hides are prepared in the villages by the Wātals and are then brought to Srīnagar, where they undergo further preparation. The leather portmanteaux and valises made in Srīnagar stand an amount of rough usage which few English solid leather bags would survive.

Furs. The furriers of Srīnagar chiefly depend for their livelihood on the business given to them by sportsmen, who send in skins to be cured. The recent law for the protection of game, under which the sale of skins and horns is prohibited, has curtailed the business of the furriers.

Lapidaries. The lapidaries possess very great skill, and are especially proficient as seal-cutters.

Paper. Kashmīr was once famous for its paper, which was much in request in India for manuscripts, and was used by all who wished to impart dignity to their correspondence. The pulp from which the paper is made is a mixture of rags and hemp fibre, obtained by pounding these materials under a lever-mill, worked by water-power. Lime and some kind of soda are used to whiten the pulp. The pulp is then placed in stone troughs or baths and mixed with water, and from this mixture a layer of the pulp is extracted on a light frame of reeds. This layer is the paper, which is pressed and dried in the sun. Next it is polished with pumice-stone, and its surface is glazed with rice water. A final polishing with onyx stone is given, and the paper is then ready for use. It is durable and in many ways excellent, but it cannot compete with the cheap mill-paper of India.

Boats. The boating industry closely concerns the people of the city. Excluding boats owned by private persons and used for private purposes, there are about 2,400 boats employed in trade and passenger traffic. The greater portion of the grain and wood imported by river is brought in large barges not unlike canal barges. These are towed or poled upstream and drop down the river with the current. There are two kinds of barge. The larger will carry a cargo of 800 to 1,000 maunds, while the smaller can carry 400 maunds. One of the most common form of boats is the *dunga*, a flat-bottomed boat, about 50 to 60 feet in length, and about 6 feet in width, drawing about 2 feet of water.

Education. A high school is maintained by the State with an average daily attendance of 326 in 1900–1, and several primary schools are scattered about in the various *muhallas*. Excellent results

are said to be attained; but though the quality may be good, the quantity is small.

There is an excellent State hospital in Srīnagar, at which about 11,000 in-patients and 28,000 out-patients are treated in the year, and two branch dispensaries which deal with 32,000 out-patients annually. A *zanāna* hospital was completed in 1899 at a cost of Rs. 40,000. Hospitals.

In medical as well as in educational work Srīnagar is fortunate in enjoying as auxiliaries to the State schools and hospitals the noble and unselfish services of the Church Missionary Society. The history of the mission is interesting, and recalls the honoured names of Robert Clark, Elmslie, Maxwell, and Downes. Opposed, despised, and persecuted, these good men stuck bravely to their work; and the small and almost hopeless beginning made in 1865 by Doctor Elmslie, without a habitation and without friends, has grown into a well-equipped force which plays a civilizing part in the lives of the people. Outward opposition has given place to genuine admiration, and in 1893 the present Mahārājā presided at the opening of the women's wards of the mission hospital. The leper asylum has been made over to the care of the mission. At the beginning of 1902 this had 76 patients, and 69 others were admitted during the year. In the same year the Medical Mission treated 14,515 out-patients and 1,151 in-patients, paid 36,969 visits, and performed 3,147 operations. Apart from the work done at the hospital, the missionaries tour in the most remote parts of the State. Christian missions.

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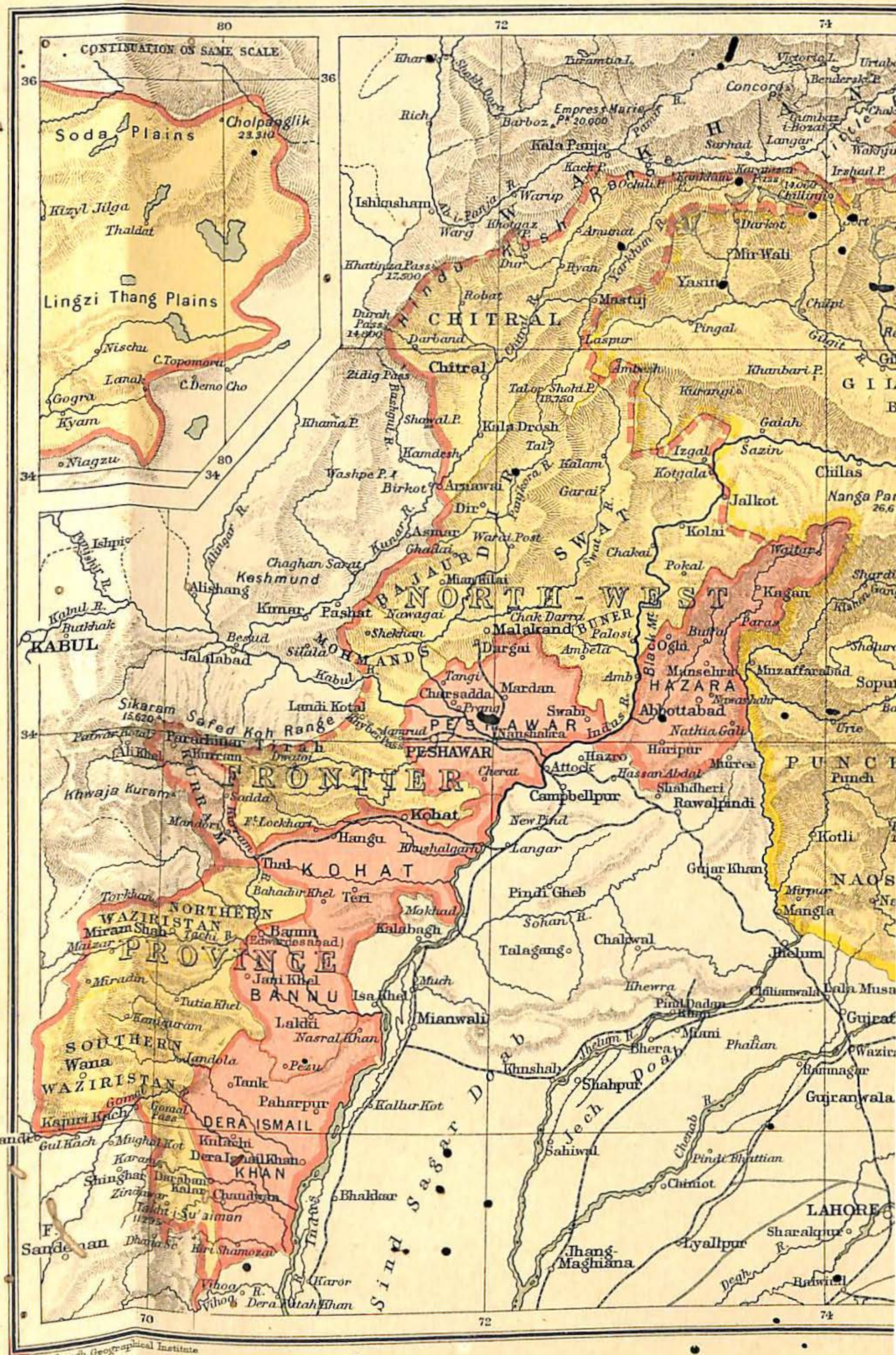
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Oxford: HORACE HART, Printer to the University


NORTH-WEST
FRONTIER PROVINCE
AND KASHMIR
Scale = 1:4,000,000 or 63·1 Miles to an Inch
English Miles
0 20 40 60 80 100
Native States coloured yellow
Railways opened and in construction
Canals
See Continuation
76
78
36
34
32
J.G.Bartholomew.
Kizil Rabat
Taghdumbash
Mariom Pamir
Ichanyart
Kugiar
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Chuchu P.
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Yarkand R.
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Khufelang
Aktagh
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Sumnal
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Sumdo
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Muztagh
Nagar
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Gusharbrum
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Askole
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Indus R.
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(LITTLE TIBET)
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Deosai
Kapalu
Kharmang
Changlung
Shyok R.
Burzil Pass
Marol
Gurais
Lughung
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Dras
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Pamzal
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Dal L.
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Tso mo Gnalari or Pagong L.
Nyak Tso
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Maru Pass
Marbal Pass
ZASKAR
Padam
Nachiland
Kishtwar
KISHTWAR
Doda
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Gulabgarh
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Tsokr Chumo
Thangra
Demchok
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Kargia
Karzok
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Tawi R.
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Chamba
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Tandi
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Bakloh
Madhopur
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The Edinburgh Geographical Institute


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